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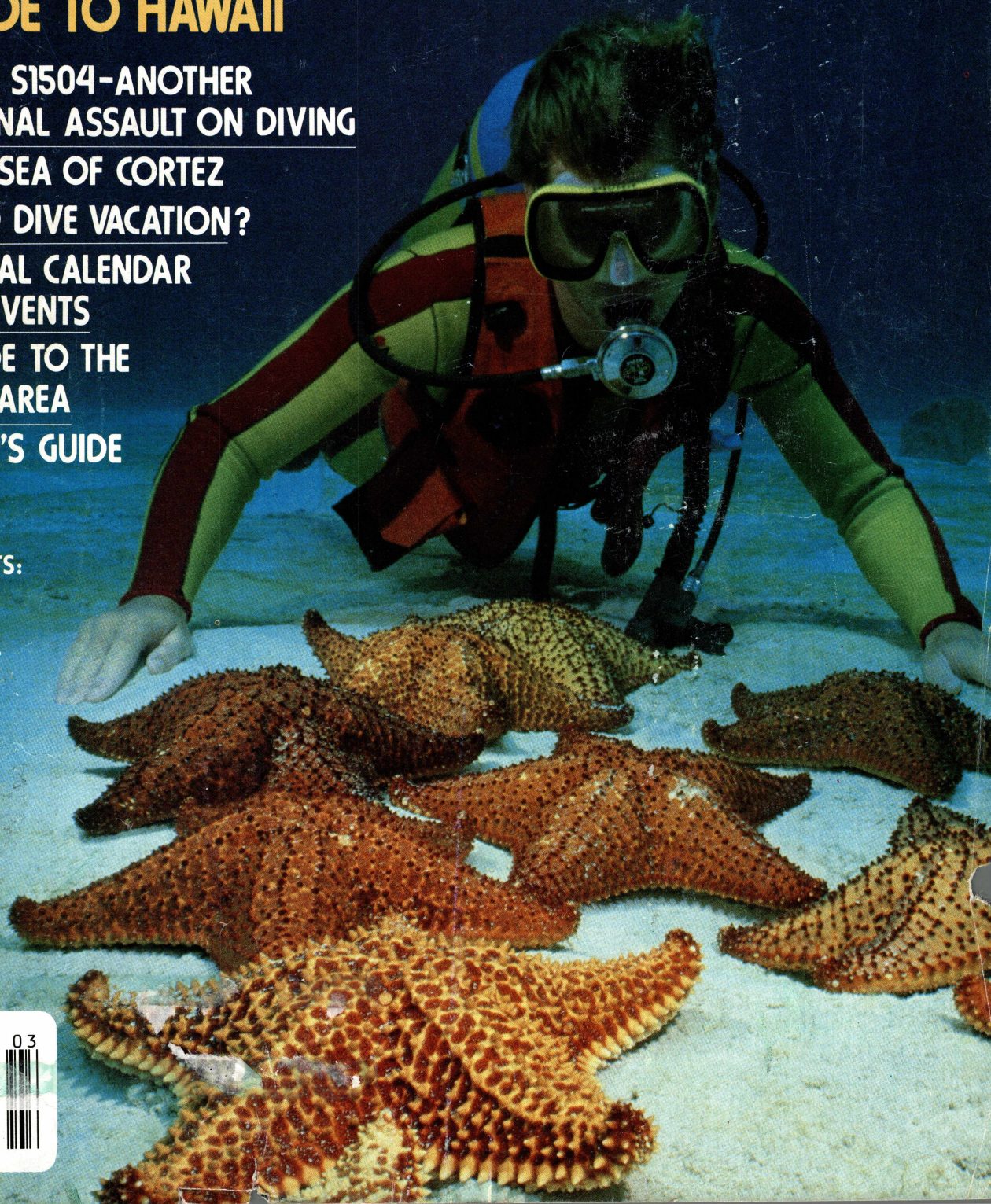
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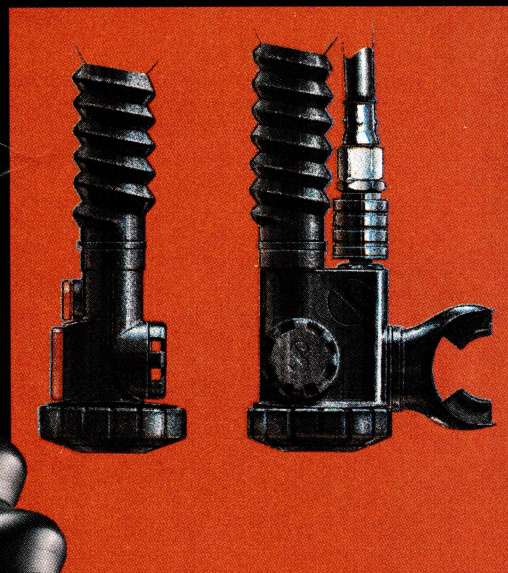




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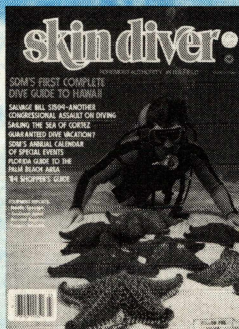
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*Are these marching starfish? No, this odd-looking phenomenon is simply underwater photography instructor Danny Batchelder setting up a photo scene for his class in the Bahama Islands. Photo/Geri Murphy.*

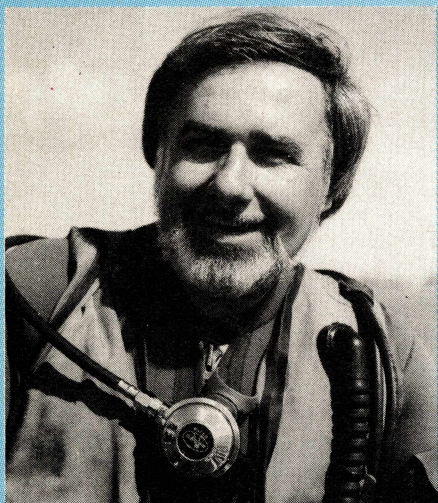


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# SDM Editorial

BY THE PUBLISHER



## DIVE DEFENSIVELY

**A**voiding accidents is unquestionably one of the major concerns of the diving community. At times it seems as though we are preoccupied with the subject, and perhaps rightly so. Because we are involved with an alien environment which can sometimes be harsh or unpredictable we must constantly strive for near perfection.

Few sportsmen are as conscientious about safety as the diving community. Scuba instructors devote the major portion of their training to safety. The textbooks are loaded with plans, procedures and rules which are all safety oriented. The equipment we wear today is basically designed with safety as the primary consideration, and most innovations such as BCs and octopus rigs are the outgrowth of accident prevention efforts.

Yet, with all of this emphasis and attention to scuba safety, there is still only one effective way of avoiding or preventing dive accidents. The key is the individual diver — you. You must be totally aware of the situation around you and fully know yourself. Accidents don't just happen, nor are they a result of bad luck. Psychologists who study accidents have discovered there are certain causative factors which frequently form a pattern for an accident. Many seemingly senseless or idiotic mistakes may actually have a very logical origin. People often do stupid things because they are not thinking straight or are not themselves. Being aware of distractions or abnormal influences can be the key to preventing an accident. Here are just a few ways that you can dive defensively and perhaps avoid an accident:

*Be properly equipped.* If you discover that a vital piece of dive gear is broken or

you have forgotten to bring it along, abort the dive or at least postpone it until you can borrow a replacement. Going into the water with a broken submersible pressure gauge or minus a depth gauge is really asking for trouble.

*Keep your gear in working order.* There is nothing more upsetting or distracting than a regulator which starts free-flowing or acting funny in the middle of a deep dive. Keep your regulator in good repair and well tuned. Also check your BC frequently for airtight integrity and make sure your gauges are accurate.

*Avoid drugs and drinking prior to diving.* Narcotics and alcohol severely reduce your ability to react quickly in an emergency situation. They also impair good judgement and are frequently the root of human error. Even a hangover from the previous night can severely affect your ability to dive. Recurring waves of nausea, dizziness and vertigo underwater can lead to tragedy.

*Get plenty of rest.* Fatigue is one of the major causes of diver error, poor judgement and poor coordination. A sleepless night can lead to many mistakes.

*Don't rush.* Many dive accidents begin on the boat or beach. A diver who is hurriedly suiting up for the dive can frequently make mistakes or become forgetful. A regulator is not properly seated on a tank valve and blows an O-ring in the middle of a dive. A hose is not connected to a BC inflator; a depth gauge is forgotten; or a tank strap is not buckled properly. Don't let anyone rush you. Take your time and do it right.

*Use a pre-dive check list.* Most professional divers use some kind of pre-dive check list — some do it mentally while others refer to an actual written list. Check lists are simple but effective reminders. Airline pilots use them faithfully.


*Beware emotional stress within yourself.* Depression, worry or brooding can

be extremely distracting. You find yourself making little mistakes because you are not thinking about what you are doing. Anger or frustration can make you impatient or careless. These are times when you must be particularly careful in your dive preparations. Force yourself to concentrate on your diving and leave your troubles on the surface.

*Don't be afraid to abort a dive.* Some people feel embarrassed about calling off a dive because they are afraid of what others might think. If the dive conditions appear dangerous or you are not feeling well, don't be shy about canceling the dive. Chances are others may silently feel exactly the same way.

*Don't become overconfident.* Veteran divers are especially vulnerable to this hazard. Because they go diving in the same place and in the same way repeatedly, the dive routine becomes repetitious and almost boring. After awhile, they slacken up on safety procedures; start diving without a BC; never bother to take along a pressure gauge; or may even dive alone. Sooner or later the odds catch up with them because the normal routine is interrupted.

*Stay in shape.* Just because you are an experienced diver don't kid yourself into thinking you can outsmart the rigors of open water diving. It takes stamina and strength to cope with strong currents, heavy surge or big surf. There is no substitute for regular exercise and either diving or swimming on a regular basis is one of the best ways to do it.

There is nothing new in what has been stated so far. Most of it is just common sense taught in every basic scuba class. Accident avoidance is solely dependent upon you — being fully aware of the situation around you and being fully prepared to handle any conceivable emergency. Accident avoidance is strictly up to you, so why not dive defensively? 





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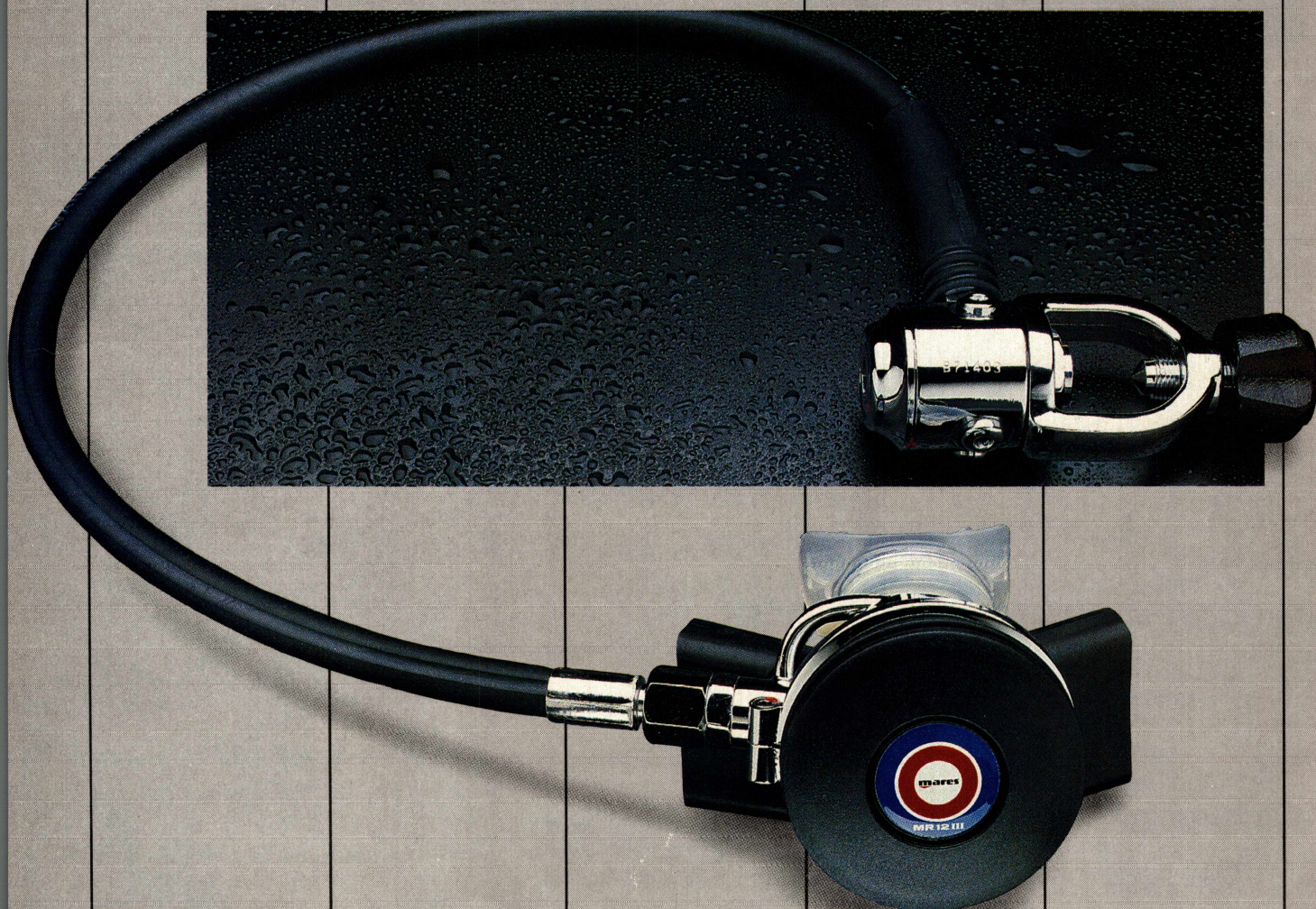
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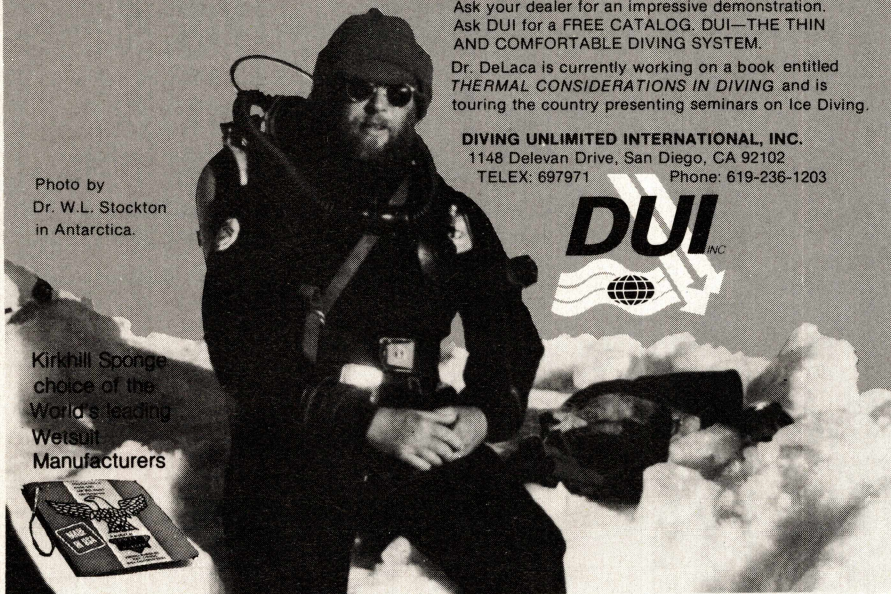
Dr. DeLaca is currently working on a book entitled *THERMAL CONSIDERATIONS IN DIVING* and is touring the country presenting seminars on Ice Diving.

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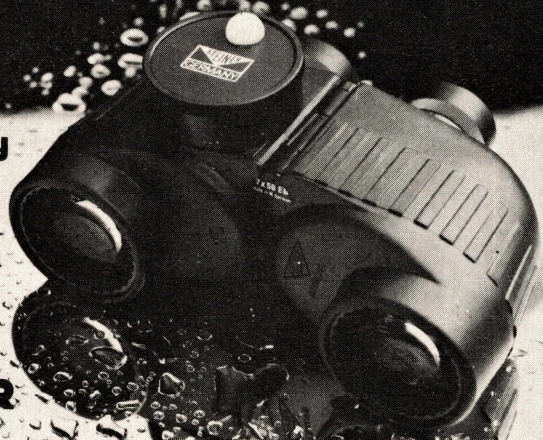
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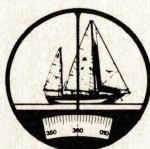
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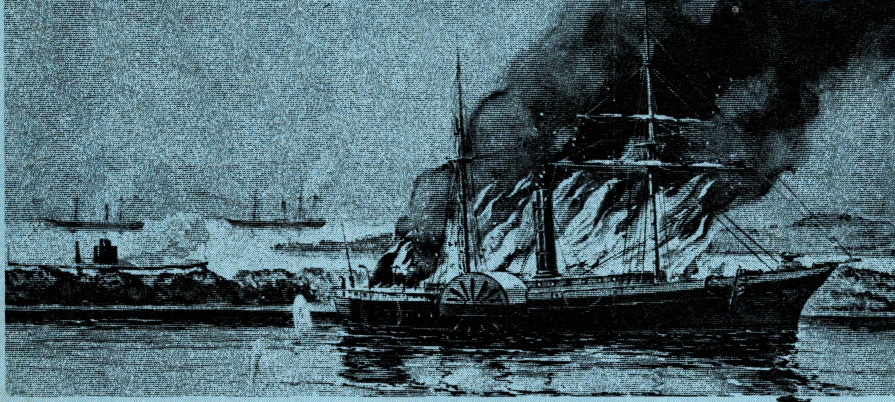
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# Wreck Facts



BY ELLSWORTH BOYD

I'm making one final plea for one last letter from readers who want to prevent government controls on shipwrecks. Your letters knocked H.R. 69—the Bennett Bill—into oblivion. Some of you even mailed sandbags to voice opposition to a bill that would have required licenses and permits to dive shipwrecks and a \$10,000 fine for retrieving artifacts.

Many of you wrote again to Washington in opposition to H.R. 3194, a watered down version of the Bennett Bill. Divers, charter boat captains, historians and marine archaeologists spoke against H.R. 3194 at the subcommittee hearing and now we are awaiting the decision.

Meanwhile, another anti-shipwreck salvage bill has been introduced, this one by Senators Tower and Bentsen. It is S-1504, similar in scope and content to the House of Representatives bills and just as deadly to divers and the entire dive industry. If passed, this Senate bill would create a new bureaucracy to oversee historic shipwrecks and who knows how the term historic will be interpreted by the combined misconceptions of state and federal governments. We do however, have several factors in our favor on this one. Senators command a larger share of national responsibility and often are older, wiser and more experienced. Senator Malcolm Wallop, Wyoming, the chairman of the subcommittee reviewing this bill, is one of the most respected politicians in Washington. He is also a diver. Senator Wallop and his subcommittee conducted a hearing and again divers, captains, historians, lawyers and marine archaeologists appeared in defense of the millions of scuba divers who are discovering wrecks and don't want them restricted and licensed by hostile and punitive laws.

The final letter I am asking you to write is to: Senator Malcolm Wallop, Russell Building—S.R. 210, United States Senate, Washington, D.C. 20510. Tell him that you oppose S-1504 and ask him to share your letter with the other members of the Subcommittee on Public Lands

and Reserved Waters. Those members are: Mark Hatfield, Oregon; John Chafee, Rhode Island; Pete Domenici, New Mexico; Chic Hecht, Nevada; Dale Bumpers, Arkansas; Spark Matsunaga, Hawaii; and John Melcher, Montana. If S-1504 was defeated in the subcommittee, it would be a stinging blow to H.R. 3194 which is being extravagantly promoted by a couple of aspiring politicians. Please write to Senator Wallop today because the subcommittee will meet soon to reach a decision. Don't put it off.

I didn't mean to put off Robin Holmes of Heriot-Watt University, Edinburgh, Scotland who has done a magnificent job of studying the wreckage of the Wellington bomber. I forgot to credit Holmes when I wrote about the World War II twin engine bomber ditched in 1940 in Loch Ness. It is one of two Wellingtons (there were 11,000 originals) to have survived over the years. Holmes is trying to gather funds to raise the Wellington. His address is: Heriot-Watt University, Department of Electrical Engineering, 31-35 Grassmarket, Edinburgh, Scotland, EH1 2HT.

Great Lakes divers will be interested in a project by Jim Levandoski, Hopkins, Michigan. Jim is writing a book about the wreck of the *Cedarville* that sank in the Straits of Mackinac—about two miles east of the Mackinac Bridge—May 7, 1965. It collided with the vessel, *Topdalsfjord*. If you have information about the *Cedarville*, write to Jim, 3164 Thirteenth Street, Hopkins, Michigan 49328. Other Great Lakes enthusiasts might want to correspond with Kevin Firth who has been researching the *Lady Elgin*, sunk September 1860, in Lake Michigan with a loss of 282 lives. Kevin says, "I will be happy to share my research on this wreck, one of the most popular in the Great Lakes. There have been many articles written about her, but there are glaring errors in some of them. I hope to dive her someday and would gladly share my knowledge of the wreck with anybody who is interested."

"Interested" is a mild expression of the

way divers are reacting to the new book hot-off-the-press: *Axis Submarine Successes, 1939-1945* by Jurgen Rohwer. Jean Haviland, world authority on shipwrecks, says the book is invaluable to American divers because 1983 marks its first and only translation from German to English. It used to be called, *Die U-Boot-Erfolge Der Achsenmächte, 1939-1945* by J.F. Lehmanns Verlag, Munich, 1968. But now, thanks to the Naval Institute Press, divers can trace merchant and fighting ship losses throughout the world, including the U-boats and their captains. The 386 page book creates a new horizon for wreck enthusiasts who have waited 15 years for the translation. For details write to Debbie Boss, Naval Institute Press, U.S. Naval Institute, Annapolis, Maryland 21402.

On the U-boat scene, Harry Cooper, P.O. Box 537, Fox Lake, Illinois 60020, publishes a monthly newsletter called *Sharkhunters*. Harry writes that his publication attracts "researchers and aficionados of the U-boat war, as well as many former officers and men of the U-boat arm." Expeditions and a museum are a couple of the irons Harry and his Sharkhunters have in the fire at the present time. Write to him for details.

To Ben Walker, Wilmington, North Carolina: There are loads of books about blockade runners sunk off North Carolina. *The Blockade Runners* by Dave Horner is excellent and his bibliography lists 10 additional books you might be interested in. Horner wrote another book, *Shipwrecks, Skin Divers and Sunken Gold*, that tells more about blockade runners. A few other books are: *Tales of the Cape Fear Blockade* by James Sprunt; *Blockade and the Cruisers* by James Soley and *Blockade Running During the Civil War* by Francis Bradlee. Ben, since you live in Wilmington, you should drive to Ft. Fischer at Carolina Beach and ask the curator to help you with your research. Also, the National Archives in Washington, D.C. has records of the Union and Confederate navies.

Dick Leroux, Massena, New York, wants books, magazine articles or other resources about the *Titanic*. I've got just the resource person for you, Dick. Write to: Charles Haas, President, *Titanic* Historical Society, 320 Dover-Chester Road, Randolph, New Jersey 07869. Haas says, "The *Titanic* Historical Society, an international organization with 2700 members, has as one of its goals the perpetuation of the history of the White Star Line and its vessels. We offer historical assistance whenever possible." Dick, you might want to read, *Raise the Titanic*, by Clive Cussler. It is fiction based on fact and was made into a movie.

That's all for now. Send your questions to: Ellsworth Boyd, Route 2, Box 408, White Hall, Maryland 21161. Please include a stamped, self-addressed envelope. ✉




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# Scuba Quiz

## Category: Boat Anchoring

By Dennis Graver

Diving from boats is very popular. When using private boats, divers frequently do not leave someone aboard to tend the vessel as is recommended. For this and many other reasons, knowledge of proper anchoring techniques is important. Note: Select all correct answers. Some questions have more than one correct response.

**1. Which of the following is of the least consideration when selecting a location to anchor a boat when diving:**

- ☐ A. The depth of the water
- ☐ B. The terrain beneath the boat
- ☐ C. The bottom composition
- ☐ D. The direction of the wind and current

**2. The minimum scope (ratio of amount of anchorline to water depth) for safe anchoring is:**

- ☐ A. 2:1
- ☐ B. 3:1
- ☐ C. 5:1
- ☐ D. 10:1

**3. A buoy is sometimes attached to the surface end of an anchorline and to another line between the buoy and the boat. This is:**

- ☐ A. Recommended because it increases the holding power of the anchor
- ☐ B. Discouraged because it decreases the holding power of the anchor
- ☐ C. Recommended because it allows the boat to make a quick departure
- ☐ D. Discouraged because it causes delays when a quick departure is required

**4. A line is sometimes attached from the crown of an anchor to a surface buoy. This is done to:**

- ☐ A. Allow the anchor to be freed if it should become fouled
- ☐ B. Mark the location of the anchor in case the anchorline parts or must be cast free in an emergency
- ☐ C. Provide a descent/ascent line for use by divers
- ☐ D. Mark the anchor's location so the amount of anchorline in use can be determined

**5. Which of the following practices is not recommended:**

- ☐ A. Attaching the bitter end (free end) of the anchorline to the boat
- ☐ B. Using the engine to take a strain on the anchorline after the anchor has been set
- ☐ C. Making a bounce dive to free a fouled anchor
- ☐ D. Reducing the amount of anchorline a few minutes before getting underway

**6. To increase the holding power of an anchor in a current or in rough weather:**

- ☐ A. Let out more anchorline
- ☐ B. Increase the amount of chain between the anchor and the anchorline
- ☐ C. Attach a weightbelt near the surface end of the anchor chain
- ☐ D. Attach a weightbelt to the anchor

**7. Select the correct statement(s) regarding use of an anchorline as a descent/ascent line:**

- ☐ A. Descending the anchorline is recommended in order to ensure that the anchor is holding properly

- ☐ B. Descending the anchorline is recommended to allow orientation at the beginning of a dive
- ☐ C. Ascending the anchorline is recommended to ensure that the anchor is clear for lifting
- ☐ D. Ascending the anchorline is recommended regardless of current or surface conditions

**8. Two anchors can:**

- ☐ A. Prevent the boat from swinging in a confined area
- ☐ B. Provide greater holding power
- ☐ C. Prevent a boat from dragging anchor when a change in the direction of the current is expected
- ☐ D. Have less holding power than one anchor if wind shifts occur

**9. An anchorline should:**

- ☐ A. Not be wrapped around the cleat before being tied off
- ☐ B. Never be turned end for end
- ☐ C. Be frequently inspected for chafing damage
- ☐ D. Be stored on deck to prevent moisture damage

**10. When lifting an anchor, which of the following practices is not recommended:**

- ☐ A. Pulling the boat forward to a position over the anchor
- ☐ B. Pulling on the anchor in the opposite direction in which it was set
- ☐ C. Allowing non-diving crew members, who have not seen the anchor underwater, to pull it
- ☐ D. Pulling on the line of a fouled anchor while the boat bobs up and down in the water



# Scuba Quiz

## Answers: Boat Anchoring

### 1. B. The terrain beneath the boat.

The depth of the water must be considered due to the amount of rode (anchorline plus anchor chain) required and for obvious diving reasons. The bottom composition must be taken into account because it affects the anchor's holding power, and the boat may well be unattended. The direction of wind and current affects both anchoring and diving. The terrain is frequently the reason for the selection of the dive site, and, since the anchor can be inspected underwater, does not affect divers as much as other boaters.

**2. C. 5:1.** The greater the scope the greater the holding power. Brief anchoring with constant observation can be done with a 3:1 scope and rough weather might require as much as 10:1. The 5:1 ratio, e.g., 250 feet of anchorline and chain for 50 feet of depth, is the minimum recommended scope; 7:1 or 8:1 is better. The scope serves two important purposes: It acts as a shock absorber when the boat pulls on the anchor; and it places a horizontal pull on the anchor to keep it dug into the bottom.

**3. A and C.** When the bow of a boat rises and falls, it pulls on the anchor. By attaching the boat to a buoy which is attached to the anchor, the boat's movements will have very little effect on the anchor. Also, in an emergency, the line to the buoy can be cast off and the boat can get underway immediately. The anchor can then be located and retrieved easily at a later time. Special buoys are required.

**4. A and B.** By pulling on an anchor in the opposite direction in which it was set, the anchor can usually be freed quite easily. This is the primary purpose of the line described, usually re-

ferred to as a "trip line." Marking the anchor for an emergency departure is another advantage obtained. The float has no special requirements. While the buoy does mark the location of the anchor, it is preferred to mark the anchorline every 50 feet and use these marks to determine the amount of line in use. Finally, the trip line should not be used as a descent line because pulling on it could dislodge the anchor.

**5. C. Making a bounce dive to free a fouled anchor.** A bounce dive—down and up quickly—unless it is the only dive of the day, is not a good practice. It affects nitrogen in the body far more than just the amount of time spent at a given depth. A diver with nitrogen acquired from two or more dives can get bent on a subsequent dive of the briefest duration, even when within the no decompression limits. There are other, better, safer ways to retrieve an anchor, such as reducing the scope of the anchorline a few minutes before getting underway. This can work the anchor loose and make it easier to lift.

**6. A, B or C.** As discussed, increasing the length of the anchorline increases holding power. Chain helps keep the pull on the anchor horizontal and reduces chafing on the line. Extra weight added near the surface end of the chain aids the chain in its work during rough conditions. Adding weight to the anchor could actually reduce its effectiveness by interfering with its function.

**7. A, B and C.** When diving from a private boat, one dive team should inspect the anchor at the beginning and end of each dive to make certain it is holding well and is clear to be pulled. Using the anchor as a point of orientation at the beginning of a dive is a

good navigational technique which can help prevent a long surface swim at the end of a dive. A moving anchorline can be dangerous, and a safe distance should be kept in rough conditions.

**8. A, B and C.** Under the right conditions, a boat can rotate 360 degrees on its anchor. Adequate room must be allowed or the boat must be anchored fore and aft to prevent the swinging. Also, if the wind or current shifts 180 degrees, the boat will pull on the anchor in the opposite direction in which it was set and the anchor may be pulled loose and drag. Two anchors set in opposition to each other can prevent this. If the lines of two anchors foul, both can be rendered ineffective. Training in the use of multiple anchors is suggested.

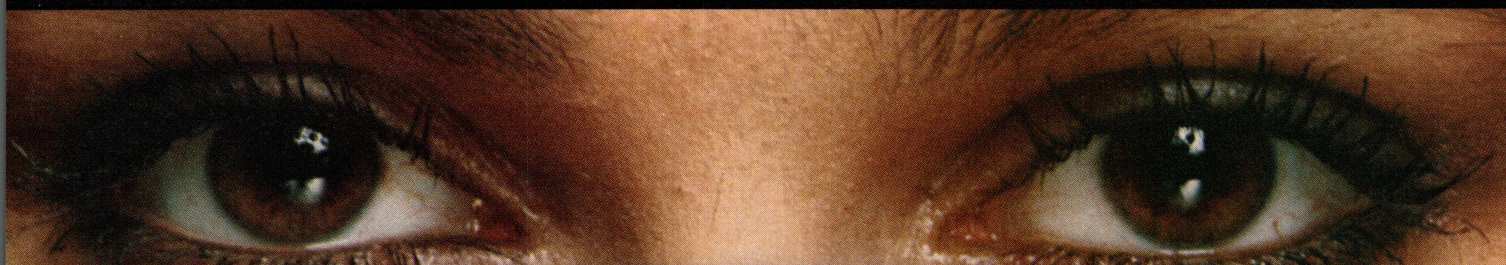
**9. C. Be frequently inspected for chafing damage.** Chafing is one of the worst enemies of an anchorline and can cause its failure. Frequent inspections are important, especially near the chain, where the line frequently rubs against objects underwater. That's why it is a good idea to turn the line end for end. The line should be dried before being stowed in an anchor well, but not for long because sunlight is also damaging. Finally, prevent kinks in the line because a strain on a kink can weaken the fibers of the line.

**10. D.** Non-divers *should* pull the anchor. Exercising after a dive can cause decompression sickness. The diver's job is to check the anchor before ascending to ensure it is clear for lifting. Sometimes the up-and-down action of a boat is used to break loose an anchor which is stuck. If this is done, the line should be tied off securely. Holding the line can result in rope burns, being pulled overboard or an injured back.

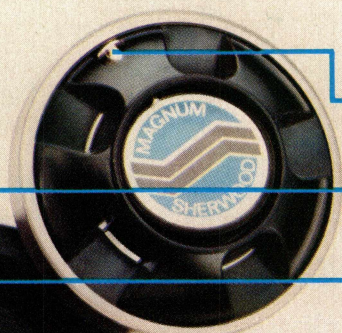
*Divers need to know quite a lot about anchoring, boating and general seamanship. Completion of a Power Squadron or U.S. Coast Guard Auxiliary Boating Course is recommended. In addition to safety, rules of the road, etc. there are many topics covered, such as navigation, which make these courses of extra value to divers.*



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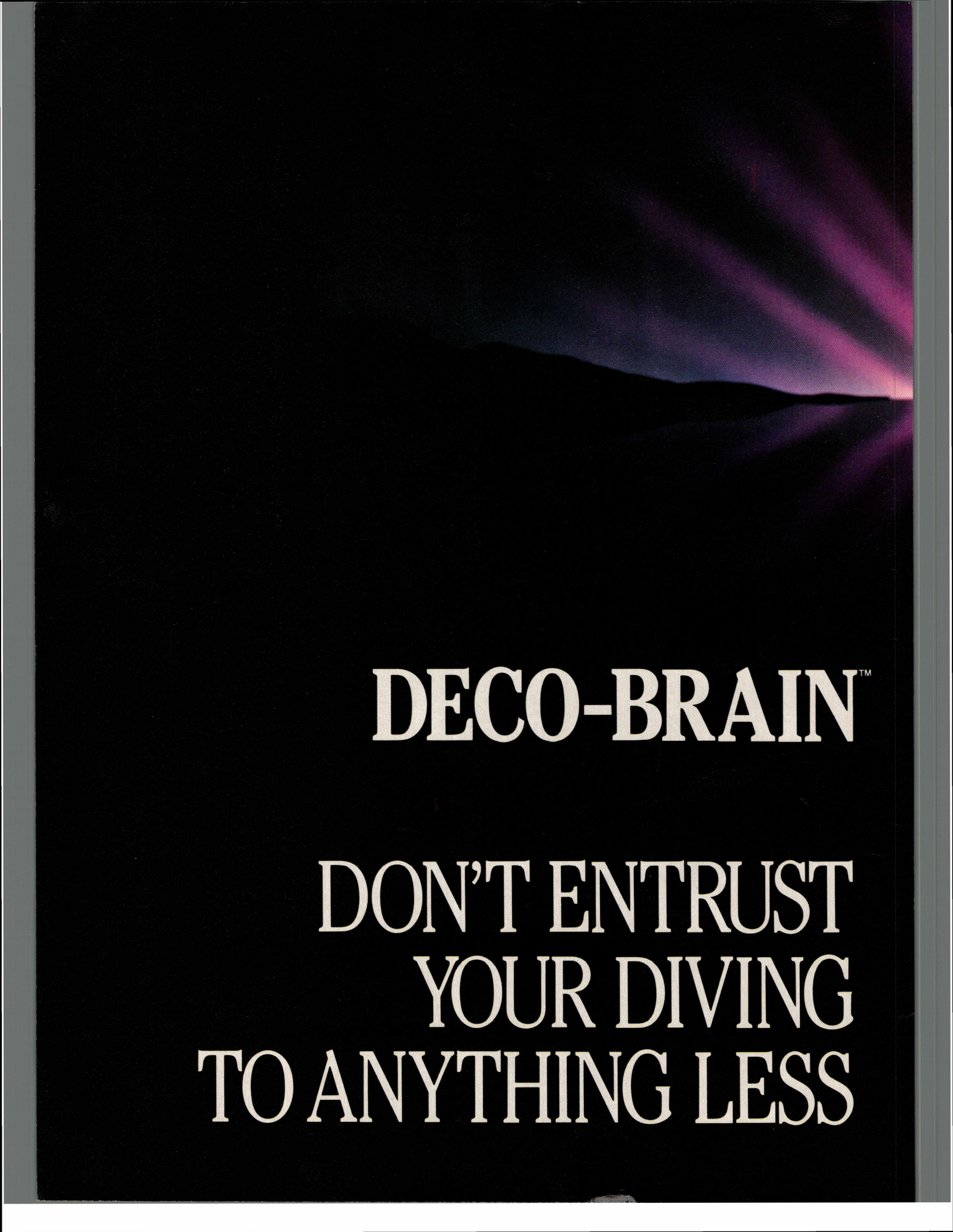
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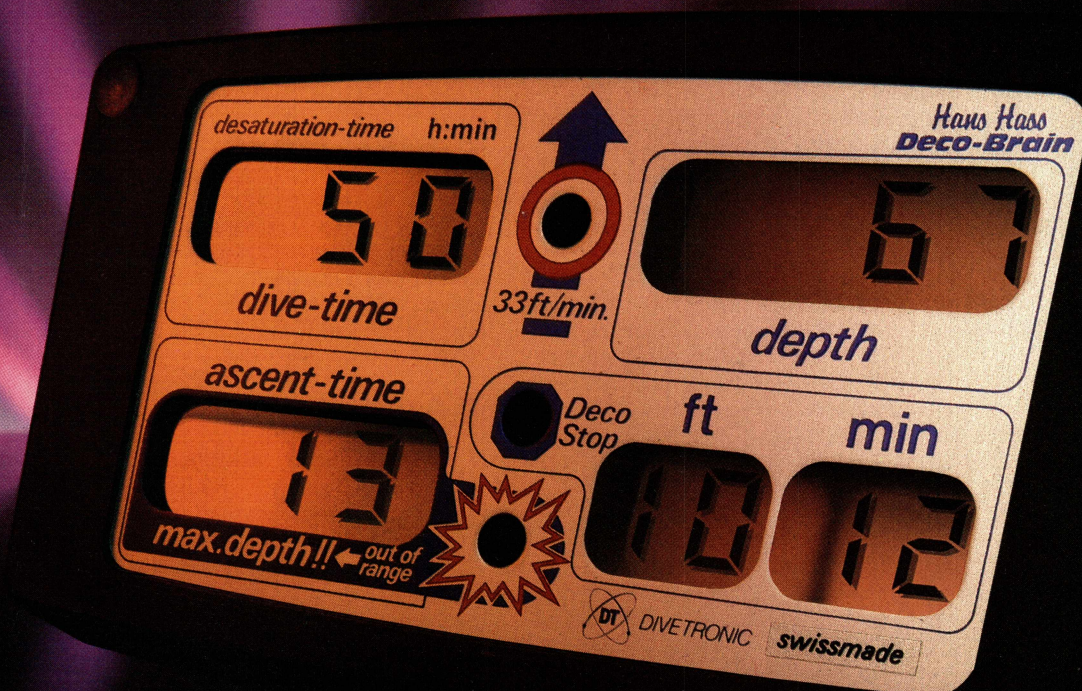




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# Film Festivals 'n Symposiums

## UNDERWATER '84

The 33rd edition of the Underwater Film Review is scheduled for April 28 at John Hancock Hall, Berkeley Street, Boston, MA. Master of ceremonies, Fred Calhoun, will introduce SKIN DIVER Magazine's publisher Paul Tzimoulis who will present motion pictures depicting some of his many adventures around the world underwater. Also, the Underwater Club of Boston will present its Paul Revere Spike Award to Norine Rouse.

During the day at the Copley Plaza Hotel in Boston the underwater symposium will highlight a series of lectures and presentations dealing with diving, oceanography and the marine sciences. Featured speakers will be: Martin Klein, Joe Zarzynski, Dr. Sam Migdole, Dr. Don Butterfield, Norine Rouse, D. Allen Waterfield, David Clancy, Barbara Bates, the U.S. Coast Guard, Paul Adler, Dr. Warren Zapol, and many more. Additionally, the

Grand Ball Room of the Copley Plaza Hotel will be given over for the day to diving equipment and travel displays.

Underwater '84 is being conducted in support of the New England Hyperbaric Center (new England's local recompression chamber) of the University of New Hampshire at Durham.

Tickets are \$7 for the Underwater Symposium and \$7 for the Underwater Film Review and may be purchased at the door on the day of the program, in advance from area dive shops, or by writing to Fred Calhoun, P.O. Box 291, Back Bay Annex, Boston, MA 02117. Make checks payable to Underwater. 🐙

## SEA ROVERS CLINIC

The Boston Sea Rovers '84, 30th Annual Underwater Clinic will be held on March 10 at the Copley Plaza Hotel, Boston, MA. There will be exhibits of scuba manufacturers and scientific organizations. There will also be meetings of scuba certifying organizations such as NAUI and the YMCA Northwest Region.

The night program will be held at John Hancock Hall. Frank Scalli will be MC and Stan Waterman will present his newest film on the Cayman Islands. A meet the speaker party follows the film show.

Special room rates are available

through the Sea Rovers. For information contact Bunky Hodge, 174 Beech St., Rockland, MA 02370. 🐙

## GREENSBORO FILM FESTIVAL

Scuba Shack of Greensboro, North Carolina will sponsor an Underwater Film Festival and St. Patrick's Day Party on Saturday, March 17 featuring underwater cinematographer Bill Lovin. Activities will include an underwater photo seminar with Bill Lovin and model Susan Abbott, an evening film show, a special presentation on North Carolina wreck diving and the St. Patrick's Day party.

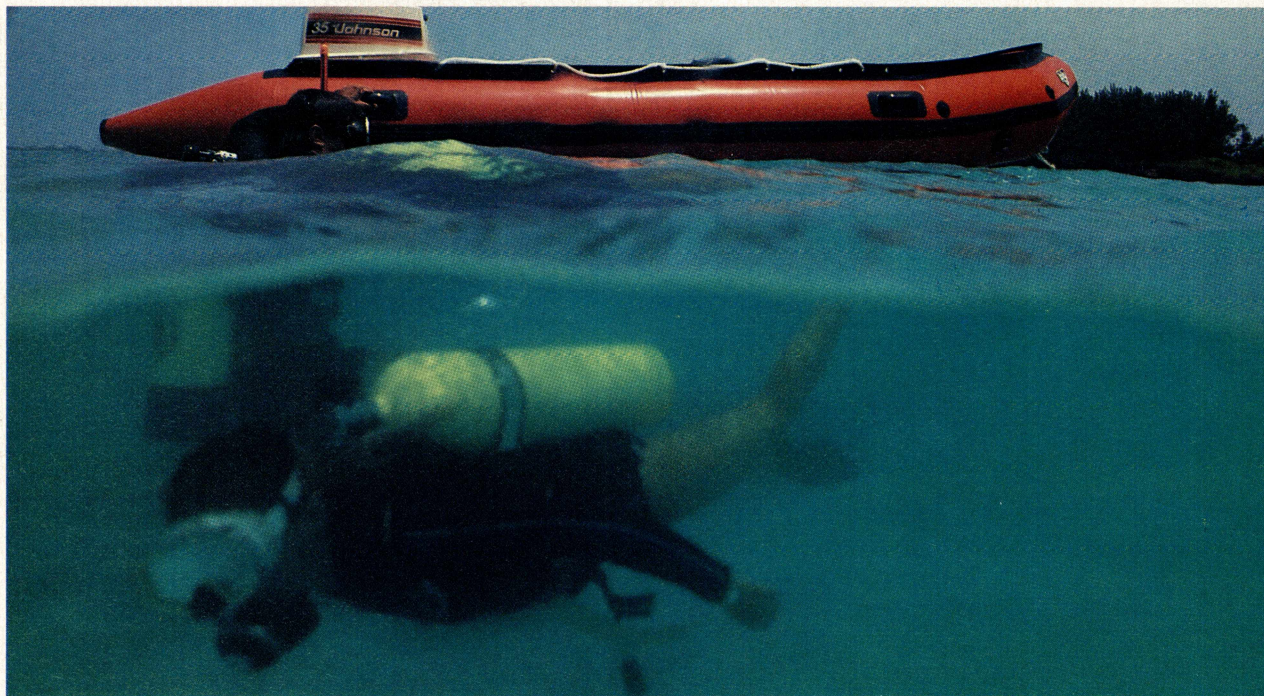
For more information on the day-long event, contact John Carter, Scuba Shack, 4623-D High Point Rd., Greensboro, North Carolina 27407 or telephone (919) 292-8260. 🐙

## SEA '84

The Underwater Photographic Society, Northern California, will present its 20th Annual International Underwater Film Festival and Photographic Competition on May 12 at the Paramount Theatre, Oakland, CA. Stan Waterman will be the event's MC, and his film, *Roughing it in the Coral Sea* and a new Cayman film will

(Continued on Page 20)

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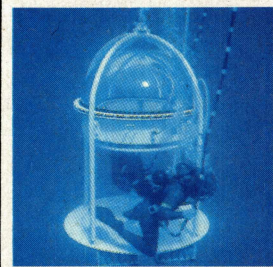
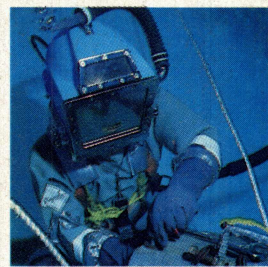
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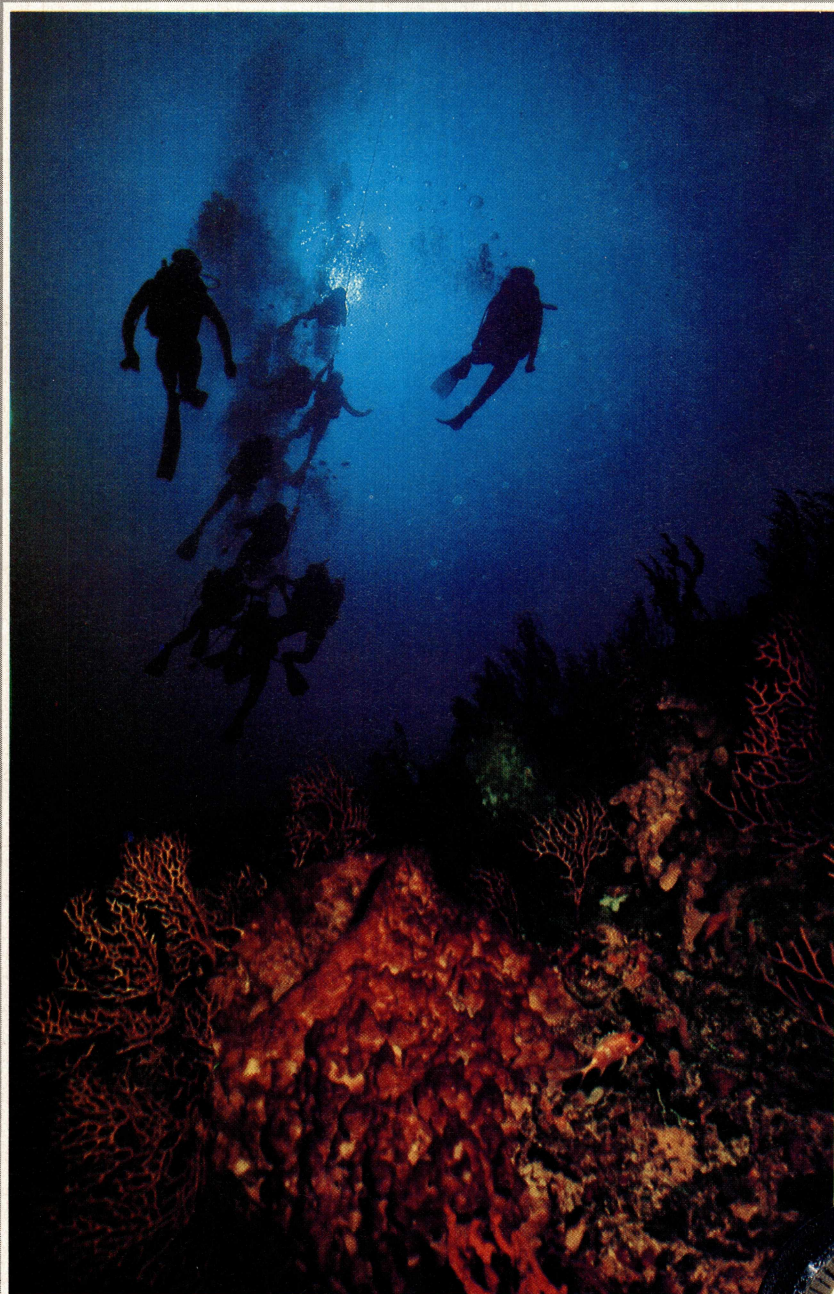
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## Diver's Calendar

**March 10** Boston Sea Rovers '84, 30th Annual Underwater Clinic. Day program at the Copley Plaza and night program at John Hancock Hall. (Contact: Bunky Hodge, 174 Beech St., Rockland, MA 02370)

**March 17** Greensboro Underwater Film Festival and St. Patrick's Day Party featuring filmmaker Bill Lovin. Sponsored by the Scuba Shack. (Contact: John Carter, Scuba Shack, 4623-D High Point Rd., Greensboro, NC 27407; (919) 292-8260)

**March 22-25** Underwater Canada '84. Canadian Ocean Technology Congress March 22-23 and International Sport Diving Program March 23-25. Dive Store Management Symposium and exhibits. (Contact: Underwater Canada, 1220 Sheppard Ave. East, Willowdale, Ontario M2K 2X1 Canada; (416) 495-4245)

**March 31** Underwater New York—13th Annual Diving Symposium, sponsored by the New York State Divers Association. Exhibits, artifacts, speakers, photo contest, workshops. (Contact: Peter Odell, 81 Steel St., Auburn, NY 13021, (315) 255-1041; or Terry Hoffman, Standart Woods, B14, Auburn, NY, (315) 252-2320)

**April 7** Ken Read Memorial Underwater Photography Contest. Categories for macro and normal/wide-angle slides. Winners announced at Underwater '84, April 28. (Contact: Bob Pantzer, 171 Whitcomb Ave., Littleton, MA 01460)

**April 15** Eleventh Annual Equipment Exposition and Pre-season Sale. Manufacturer exhibits, speakers, movies and door prizes. (Contact: New England Divers, 131 Rantoul St., Beverly, MA 01915; (617) 922-6951)

**April 20-22** Oceanfest, Miami, Florida. (Contact: International Oceanographic Foundation (305) 361-5786)

**April 27-29** 18th Annual Greater NYC Underwater Exposition—Beneath The Sea (formerly Dive to Adventure), at the White Plains Hotel and Marymount College. Seminars, workshops, special events and exhibits. (Contact: BTS, P.O. Box 644, Rye, NY 10580 or A. Zigahn (914) 961-2088)

**April 28** Underwater '84 symposium, Copley Plaza Hotel, Boston, MA. Underwater film review at John Hancock Hall. (Contact: Fred Calhoun, P.O. Box 291, Back Bay Annex, Boston, MA 02117)

**April 29** Fourth Annual Underwater Easter Egg Hunt to Fight Leukemia at La Jolla Shores, La Jolla, California. (Contact: Kim Skaalen, 4423 Brighton Ave., Ocean Beach, CA 92107)

**May 4-6** Our World-Underwater, Chicago, IL. (Contact: Leroy Winbush (312) 527-4478)

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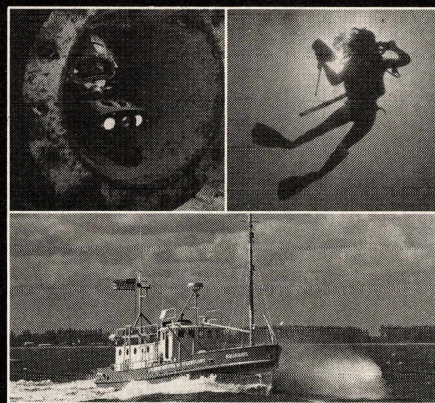
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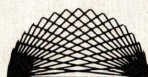
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## DIVER'S CALENDAR

**May 12** Sea '84, The Underwater Photographic Society, Northern California 20th Annual International Under Film Festival and Photographic Competition. (Contact: UPS (415) 465-6400)

**May 12 and 19** Search and Recovery Seminar for fire and police personnel in the state of West Virginia. Conducted by the Gauley River Volunteer Fire Department. (Contact: Captain William McCormick (304) 768-1495)

**May 20-26** International Society of Aquatic Medicine Annual Meeting at the Pineapple Beach Hotel, St. Thomas, U.S.V.I. (Contact: Michael Rosco, M.D., 1127 Wilshire Blvd., Suite 809, Los Angeles, CA 90017)

## NAUI RESCUE SEMINAR

The National Association of Underwater Instructors College is hosting the First Annual International Diver Rescue Seminar. Some of the top experts in the field, such as Walt Hendricks, Sr. and Jim Hicks, will be speaking. The dates are March 26-30 at the college. Cost is \$50 and seating will be limited.

For more information contact the National Association of Underwater Instructors College in Orange, CA. 🐠

## FRINK T-SHIRTS

Underwater photographer Stephen Frink has signed an exclusive licensing agreement with Coconuts T-shirt company to produce a line of custom T-shirts derived from his original photographs. Each design will be subject to conceptual and artistic approval by the photographer and will be true to intent of the original image. The shirts will be available through dive shops, and customers requesting special limited-edition designs may be accommodated as well.

For further information please contact Stephen Frink or Coconuts, 5780 SW 25th Street, Bay 5, Hollywood, Florida 33023 or phone (305) 989-5240. 🐠

## FILM FESTIVALS

(Continued from Page 16)

be shown. Other films will include Jack McKenney's *Treasure Diving*. A UPS presentation, Local Color at Breakwater, will also be included.

During intermission, the competition's winning prints will be shown in the lobby and the winning slides will be shown on the screen. For tickets telephone (415) 465-6400.

The deadline for entries in the photo competition is March 30. For competition entry blanks and information contact Maury Schlatter, P.O. Box 9612, Berkeley, CA 94709; telephone (415) 525-2238. 🐠



# DISC UNDERWATER PHOTOGRAPHY

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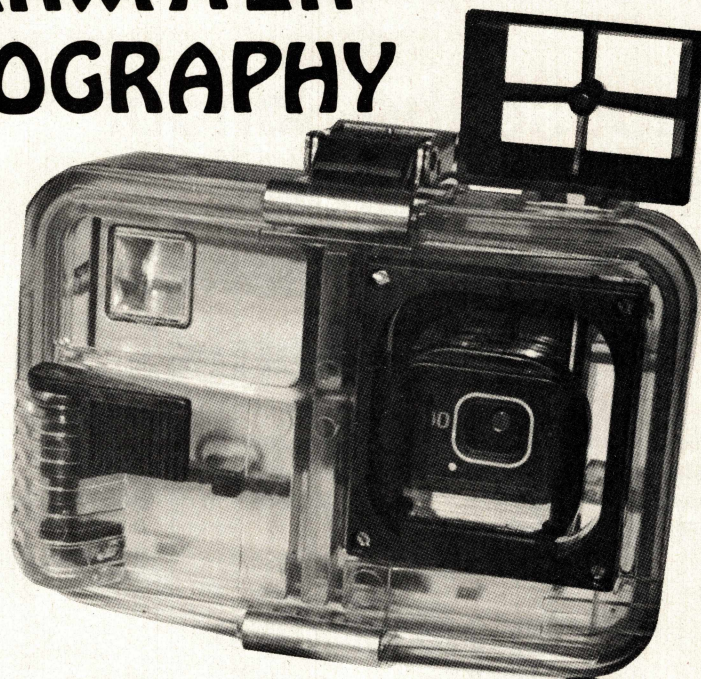
With the Disc cameras you do not have to be an experienced photographer to get great results. These cameras have advanced microcomputer technology, a unique film, and decision-free features that let you take pictures that you may never have thought possible. When you decide to take a picture, simply push one button. The camera selects the proper exposure, takes the picture, advances the film and recharges the flash.

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# RX

## FOR DIVERS

BY FRED BOVE, M.D., PH.D.

The following description of ciguatera poisoning is by Jay Stemmler, a research microbiologist from the School of Medicine, University of Washington.

If you were asked what the most frequently reported chemical foodborne disease is, your most likely reply might be "Grandmother's chicken salad on a hot Saturday afternoon!" The real leader, however, is the marine toxin ciguatera; the disease caused by eating the fish associated with coral reefs. The toxin, harmless to the fish, is believed to be accumulated by coral reef fish feeding on marine microalgae called dinoflagellates.

Ciguatera, or the itch, as it is known in New Caledonia, is limited to the tropical and subtropical latitudes of 35°N and 34°S. The toxin is restricted to marine fish and algae in and around coral reefs. No pelagic (open ocean) fish have ever been implicated.

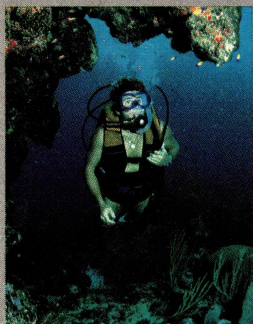
Over 300 species have been shown to contain the toxin. Some of the more common fish include surgeonfish, parrotfish, reef sharks, morays, jacks, wrasses, snappers, groupers and barracuda. Since the toxin is cumulative, the larger carnivores are always the most toxic.

Occurrence of ciguatera is spotty and completely unpredictable. Some fish may be safe to eat on a particular reef, others on the same reef unsafe.

Symptoms of ciguatera poisoning generally begin with nausea, vomiting and diarrhea, leading to a general weakness followed by up to three weeks of prickly, itchy skin. Fortunately, fatalities are rare and recovery is usually complete although slow.

At present, there are no antidotes to ciguatera and no lasting immunity once recovered. Also, the only positive way to test suspected fish is to feed small samples to test animals. If they vomit, the





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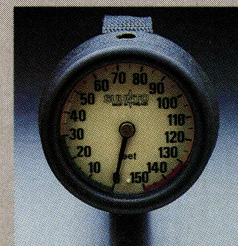
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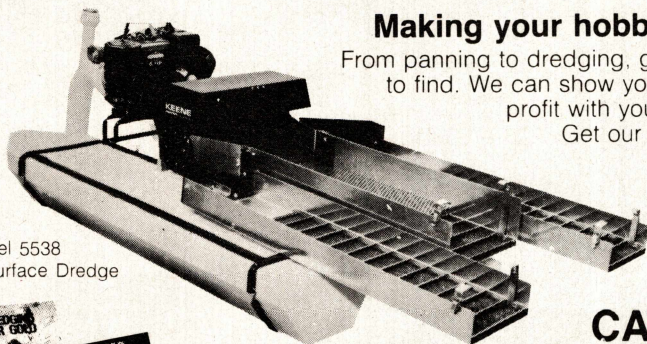
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## Rx FOR DIVERS

food is deemed unsafe.

It should also be pointed out that no type of cooking, such as frying, broiling, baking, steaming, drying, salting or boiling will neutralize the ciguatera toxin.

Two types of marine fish poisoning which should not be confused with ciguatera are tetraodon, caused by a naturally occurring poison in the puffer family and scombroid, the result of spoilage.

The safest plan is to check with local people before eating any self-caught coral reef fish—they will know the condition of the reef at that particular time.

Ciguatera is becoming a more significant health problem as more travelers visit tropical regions to dive. Since the most important means of avoiding ciguatera poisoning is to know the region and the fish, it is likely that the casual traveler will not be as aware of the problem as are the permanent residents.

Areas which are generally considered to be safe, can become sources of ciguatera for no apparent reason. It is, therefore, important to check with the local population before ingesting any fish caught in unfamiliar, tropical waters.

Although ciguatera is prevalent in tropical and subtropical latitudes, there seems to be a greater concentration of ciguatera-carrying fish around the islands of the Caribbean, the tropical areas of the Pacific and the Indian Ocean.

The disease affects the nervous system, and can result in incoordination, tremors, convulsions and muscle weakness that sometimes can develop into serious paralysis. Recovery may not be complete for months or years, and although uncommon, deaths have occurred from this disease. Abnormal sensations such as electric shock-like feelings, hot-cold reversal and other tingling or burning sensations can last for many months after ingesting the toxic fish. If you notice tingling of the lips, mouth or tongue while eating fish from tropical waters, this may indicate ciguatera toxin. Tasting before you indulge is a useful role in this case. As Mr. Stemmler notes, there is no cure and recovery is often slow and uncomfortable.

## YMCA U/W COLLEGE

The National YMCA Underwater College in Key West, Florida will conduct two sessions this year, in May and August, for the convenience of those who wish to prepare for leadership in underwater activities. Each session will present a series of courses which may be taken singly or in combination, depending upon the interest and background of the individual.

For further information contact: National YMCA Center for Underwater Activities, Key West, FL.



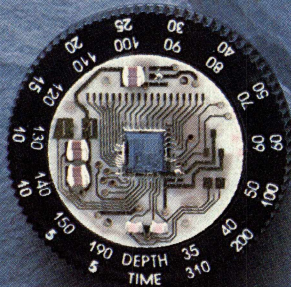
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## SCUBA FLEA MARKET

Wright State University's Underwater Education Program will sponsor its Second Annual Scuba Flea Market and Diver Exchange on Sunday, April 8 on the WSU Main Campus in Dayton, Ohio. The event will be open and free to the public. In addition to the sale of new and used equipment there will be films, video presentations, slide shows, discussions and equipment demonstrations (with audience participation) in the WSU pool.

For information contact Dan Orr, Director, Underwater Education Program, Wright State University, Dayton, Ohio 45435; (513) 873-2402.

## DIXIE LOBSTER HUNT

Dixie Divers Inc. is sponsoring its 5th Annual Lobster Hunt on July 20 and 21. Competition will be held at both DDI locations, Ft. Pierce and Stuart, Florida. The bounty is scheduled to exceed the 1983 purse of \$8,000. All entrants will receive free air. There is no entry fee required, but you must preregister.

The Treasure Coast area offers great diving opportunities to all. Beach diving, wreck diving, boat diving and of course charters aboard DDI's *Diver 1* are available year-round as well as during the annual lobster hunt. Dixie Divers will be working with a select group of hotels to accommodate divers visiting the area. Diving packages are available year-round. Florida lobster season is open July 26-March 31. The DDI information packet includes lobstering regulations.

For free information and a registration packet send a self-addressed envelope to: Dixie Divers Inc., Lobster Hunt, 1843 S.E. Federal Hwy., Stuart, FL 33494.

## CANADA U/W CENTER

The College of Oceaneering, in cooperation with Can-Dive of Canada, has been commissioned by the Canadian Government Ocean Industry Development Office to prepare a feasibility study for the establishment of a National Underwater Center in Canada. "The new center is envisioned as a multi-purpose facility," said Jim Joiner, president of the College of Oceaneering, in the Los Angeles (CA) Harbor. "It encompasses underwater diver and operator training, product and operations research and development, certification and testing, and hyperbaric treatment and research. It will also offer training for dive medics and civilian medical practitioners responsible for the medical well being of personnel employed in the underwater environment."

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For information on SSI, the SSI Instructor/ Sales Clinic or the Progressive Sales Seminar, contact: Hal Watts or Ken Cox, 2219 E. Colonial Dr., Orlando, FL 32803; (305) 896-4541.

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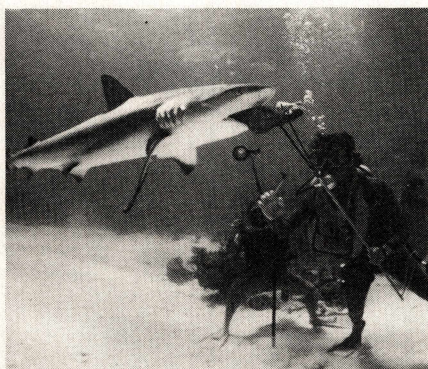
The book, *Touch the Sea*, by Dee Scarr, will be released this month by Avon Books. Liberally illustrated with color photographs by Scarr and others, including Geri Murphy, Jeff Mondle and Herb Segars, *Touch the Sea* is of interest to both divers and non-divers, helping anyone with an interest in marine life to understand the gentle sea. Chapters include information on tidepooling, snorkeling, Scarr's collection of "family portraits" (of fish) and interacting with eels.

In conjunction with the release of her book, Scarr will be presenting Touch the Sea, the Slide Experience in a number of

locations in the U.S.: March 2, at the Shedd Aquarium in Chicago; March 7 at Utica College; March 10 at the Boston Sea Rovers Underwater Clinic; and March 11-16 through Atlantis 2 Scuba in New York City.

## TV DIVE TO ADVENTURE

Filmmaker Jack McKenney recently co-produced 13 half-hour shows for Canadian television. Produced in conjunction with Julian Roffman and presented



by G.W. Harper in Canada, and Bob Abrams for worldwide distribution, the new series highlights the fun, excitement and adventure of sport diving.

Each show has a main theme but also covers at least two other related areas of diving interest. Some of the show titles in-

clude; *Monster or Myth, the Octopus*; *The Devilfish of el Bajo*, *The Giant Manta Rays*; *The Taming of the Sharks*; and *A Sea of Darkness, Night Diving*.

The series will initially be released on First Choice cable television in Canada and then syndicated worldwide.

## LOXAHATCHEE PHOTO PRO

Loxahatchee Boat Works and Dive Shop in Jupiter, Florida has appointed Robert Lundy as its photo pro. He is responsible for expanded above water as well as U/W photography products and programs. PADI creative U/W photography courses are being offered in 110 and 35 mm format on a continuing basis.

Loxahatchee Boat Works and Dive Shop is the only PADI training facility in Jupiter and offers all scuba and resort courses as well as many specialty courses. For more information contact: Loxahatchee Boat Works and Dive Shop in Jupiter, FL.

## GIDDINGS SPECIAL

On Tuesday evening, March 6, PBS will air a program entitled: *Visions of the Deep: The Underwater World of Al Giddings*. The program will be about Giddings, a well-known underwater cinematographer, and his work. Check your local listings for times and stations.

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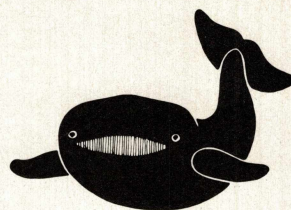
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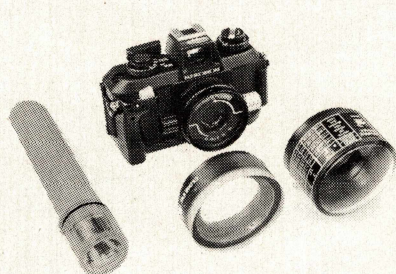
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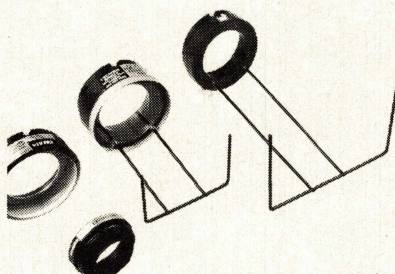
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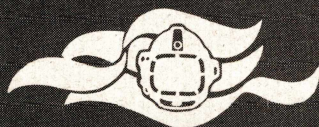
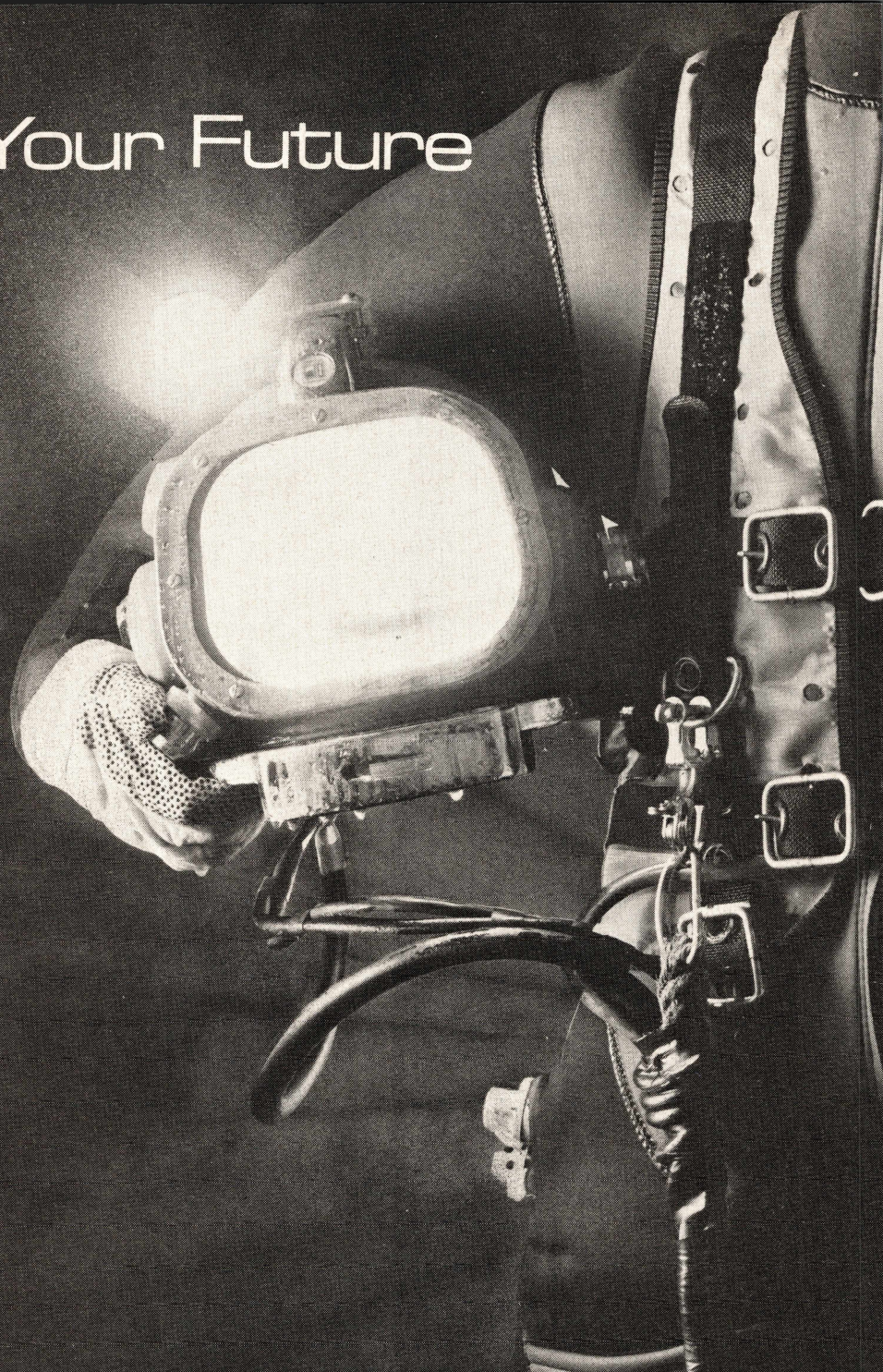
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272 South Fries Avenue, Wilmington, CA 90744  
(213) 834-2501

■ Send for our free illustrated catalogue for more information about your career as a commercial diver.

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Phone \_\_\_\_\_ Age \_\_\_\_\_



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SD:84:1



# HAWAII

OAHU MAUI HAWAII KAUAI

SDM SPECIAL TRAVEL SECTION





**T**o some divers, Hawaii means Honolulu—a bustling city on a Pacific island. They visualize flowered leis, hula dancers, high-rise hotels and Waikiki Beach. But there is much more to Hawaii than this common image.

Honolulu, the capital of the Hawaiian Islands, is on Oahu, the most developed island in the chain. The other major islands are Maui, Hawaii and Kauai. Each island has its own distinct personality and offers a variety of exciting experiences—aerial sightseeing, camping, dining, golfing, hiking, horseback riding, parasailing, skiing, shopping, sunning, surfing, snorkeling and scuba diving—in addition to the cosmopolitan delights of Honolulu.

Getting to the Hawaiian Islands is easy. About 2400 miles southwest of California, the islands are approximately a five hour flight from the West Coast cities; nine hours from Chicago; and 11 hours from New York. Depending on your choice of airline and destination, mainland-to-Hawaii flights can take you to Honolulu, Oahu; Hilo, Hawaii; and the island of Maui. For readers from the Far East, Philippine Airlines provides excellent air service, with continuing flights to the U.S. mainland.

Travel between the islands is also easy. Three airlines—Hawaiian Airlines, Aloha Airlines and Mid-Pacific Air—connect the major islands' airports with frequent flights and serve the smaller airports at least once a day. The flights are short, often less than a half hour, and can be an enjoyable part of your vacation. We flew on Mid-Pac (Mid-Pacific Air) and were pleased with the service. The personnel were polite, the planes departed and arrived on time, and our baggage always arrived with us. Mid-Pac's toll-free number is (800) 367-7010.

"Aloha" is the universal salutation of the Hawaiian Islands. It's a greeting, a feeling of friendship and a farewell. You'll hear many alohas at the airport. Being on a Hawaiian Island is a festive event. We saw flowers and the aloha spirit everywhere and the colorful clothing raises your spirits.

# HAWAII

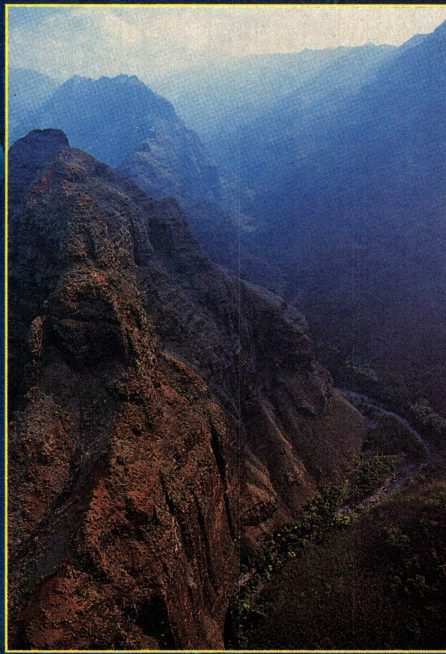
## A Polynesian Paradise for Scuba and Snorkel

TEXT AND PHOTOGRAPHY BY JIM AND CATHY CHURCH

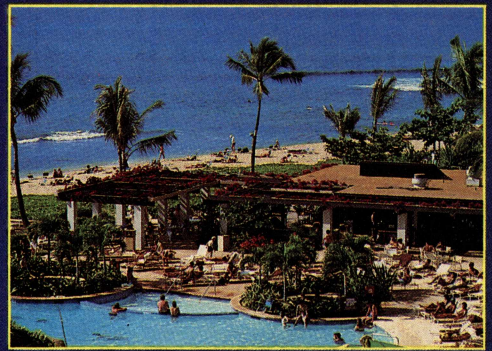


Airplane Wreck, Oahu





View from helicopter, Kauai



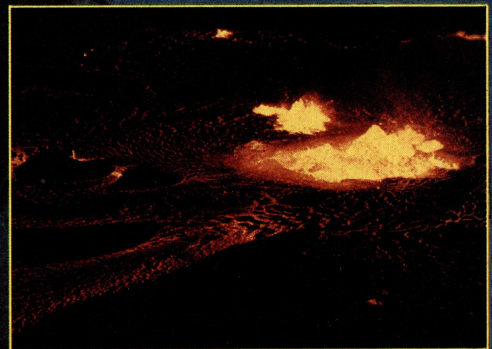
Maui Marriott



Dragon moray, Kauai



Ornate butterflyfish, Hawaii



Lava flow, Kilauea Crater, Hawaii



Whether it is bustling Honolulu or the quiet island of Kauai, you'll feel welcome.

The air is pleasantly balmy and freshened by the trade winds from the east and northwest. Temperatures in the lowland and beach areas will vary from 65 to 80°F in winter and from 73 to 88°F in the summer. The tops of the highest mountains may see lows of 20°F and temperatures in the upland sections vary from 50 to 70°F. Remember, these lovely tropical islands are one of the 50 U.S. states thus, electricity is 110v, the dollar is the basic currency, major credit cards are accepted at most large establishments and traveler's checks are generally accepted at even the smaller businesses. Don't however, depend on your checkbook as banks require 21 days to clear mainland checks. Photographers will be happy to know that there is one hour color print, and overnight color slide processing available on all four islands.

Cars, campers and four wheel drive vehicles are available on the islands. Commercial tours, public buses and shuttle buses may be the most economical way to see the islands, and many drivers give helpful and humorous narrations. Also, many dive operators will pick you up at your hotel.

### ACCOMMODATIONS AND DINING

The price of accommodations varies directly with location: The closer the room to the water—especially to a beach—the higher the price. Prices also vary with the quality of the accommodation and proximity to restaurants and other amenities, but location seems to be the key.

If you are on a budget, consider an off-beach accommodation with a small kitchen. Breakfasts and lunches can be expensive, so you might prepare these in your room and splurge on the evening meal. Dive operators may be able to advise you about lodging, some have hotel packages and some will pick you up and return you to your room. Write and get the facts ahead of time.

Dining will be an adventure. Hawaiian, Chinese, Japanese, Indonesian, Filipino, Tahitian and other foods are available in addition to standard fare you have at home. You can sample delicacies such as sashimi, raw fish served with shoyu and Chinese mustard. Hotels frequently schedule luaus with an entire pig roasted

in an imu, an underground oven of hot rocks. Shows featuring hula and fire dancers usually follow the luau. The shopping will also be exciting. Merchandise, especially artwork, fashionable clothing and jewelry is made locally as well as imported from all over the world, especially the Orient and South Pacific.

### THE DIVING SCENE

The safest and sanest way to dive Hawaii is to go to a certified dive operation and dive with their experienced, qualified guides. Depending on your skill level, they will take you to the best dive sites. Or if you wish to dive without a guide, at least get their advice. The islands are in the middle of a big ocean with currents. Large swells are common and they can be dangerous when you are making an entry or exit.

Of the 37 or more dive operations in the islands, we surveyed 22 during our trip. Most of these were full-service dive stores with the retail sales, equipment, instruction, repair and services you'd normally expect. The exceptions were small operations specializing in dive charters rather than retail sales. Their universal message to us was: "Tell your readers to dive with an established operation with the certification, experience and equipment needed to show them a good time."

Some operators offer a diver photo service—they will photograph you underwater and hand you the finished color prints, slides, unprocessed film or a video cassette, depending on their equipment and your needs. Some operations are geared for snorkelers and beginners, others prefer experienced divers and many can provide exclusive trips to find specific marine life and underwater photography. Tanks, weights and backpacks are usually included as part of the dive package, but expect an extra charge for additional gear. All dive operators will require proof of certification unless the dive trip is designated as an instructional or introductory dive.

While some operators have large boats, most have small boats for up to six divers. The advantages of these are that it is easier for you to form a group for an exclusive charter and there are fewer divers on the site. Smaller boats are often faster, which reduces travel time so you have more time for topside activities. However, the larger boats are much

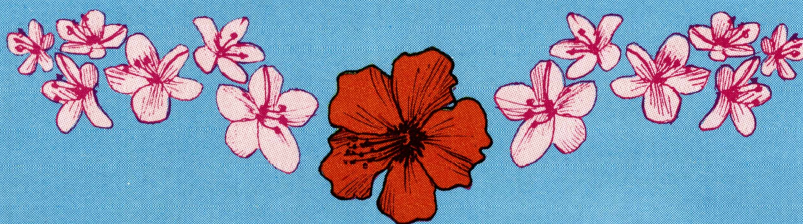
more spacious, have marine heads and provide a more comfortable ride. The longer trip becomes pleasurable as you enjoy the island sights from the sea.

Water temperatures range from about 70°F in the winter to 75°F in the summer. To coldwater divers, this is considered warm. But if you are accustomed to 85°F water, bring a full one-eighth or three-sixteenths inch suit for winter and a shorty wetsuit for summer. Knee pads are helpful as surge can be strong.

Hawaiian dive sites usually feature terrain, fish and action. You will see elaborate lava rock tunnels; numerous species of bright, tropical fish; and fish feeding, eel petting and turtle catching are common. You may be surrounded by dolphins or see a huge manta ray. Humpback whales migrate to Hawaii between November and May to breed. Although you will not likely see one while diving, listen for them underwater. When their beautiful song reaches you from a mile away, you feel certain they must be right behind you. Contrary to what your Hawaiian cab driver may say, you probably won't see sharks unless you want to visit a divemaster's pet shark sleeping in a cave. *Warning:* Although eel feeding and petting are highlights of Hawaiian diving, don't try it yourself! Even the experienced guides have gotten badly bitten. You should be perfectly safe watching the guide and eels from a few feet away.

Because the reefs are exposed to occasional storms, they are composed of organisms resistant to the waves. To a Caribbean diver, some reef areas may appear sparse at first because the familiar yellow tube sponges, plume worms, seafans and other soft gorgonians aren't there. Rather, look for the hundreds of different kinds of beautiful tropical fish that are characteristic of Hawaii. Look for red and yellow encrusting sponges, hard corals, octopus, hidden nudibranchs and shells. You often see more of the small creatures at night. Most of the invertebrates will be different from those in the Caribbean. Slate-pencil urchins have thick red spines and hermit crabs may have orange and yellow stripes.

Most of the shops interviewed are conservation-minded. To them, taking game on their dive sites is the same as shooting animals in a zoo. They can show a creature to many divers, but only one can take it. Several small areas are protected and we hope this trend continues.





# OAHU

Almost all tourists arriving in the Hawaiian Islands visit Oahu. Some are drawn to Waikiki Beach; others head for the 155 shops at the huge Ala Moana Shopping Center or take their families to Sea Life Park. But to many, it is the lure of the dining and nightlife that draws them to Oahu. When the other islands tend to "roll up the sidewalks" after dinner, the nightclubs on Oahu are just warming up.

Sightseeing on your own, or by guided tour, can include Chinatown and its open-air market and Shinto Shrine; Paradise Park with the world's largest free-flight aviary; the excellent Polynesian Cultural Center with pageants and displays from many Polynesian islands; and the memorial over the sunken battleship, *Arizona*, at Pearl Harbor. And, everywhere you go there are fascinating contrasts of old and new architecture. The list of interesting things to see is almost endless.

Accommodations range from luxury rooms overlooking Waikiki Beach to smaller hotels and the less crowded beaches near Waianae. You can join the crowd or enjoy some space—you have the choice on Oahu.

## DIVE SITES

Diving during most of the year is best on the leeward, southwest side, from Hanauma Bay to Kaena Point. When occasional storms or swells come from the south, you can shore dive the north side.

**Hanauma Bay**, a marine preserve at the southeast point of Oahu, has one of the most popular and beautiful beaches in the islands. The white sand beach is shaded by palm trees and a shallow reef protects bathers from heavy seas. It is a popular snorkeling destination and a safe shore or boat dive for beginners. It's a steep walk from parking lot to beach, but there is a shuttle. **Jackie's Mountain**, just outside of Hanauma Bay, has pinnacles that almost reach the surface, causing the water to foam as swells pass overhead. It reminded us of a miniature mountain range with ledges at 110, 85 and 50 feet, whose peaks are surrounded by soft foamy clouds. The mountains are pierced by tunnels and surrounded by fish. **Maunalua Bay**, on the south shore, has a variety of sites featuring tunnels, turtles and fish. **Magic Island**, off Waikiki is shallow and has lots of tame fish for beginners.

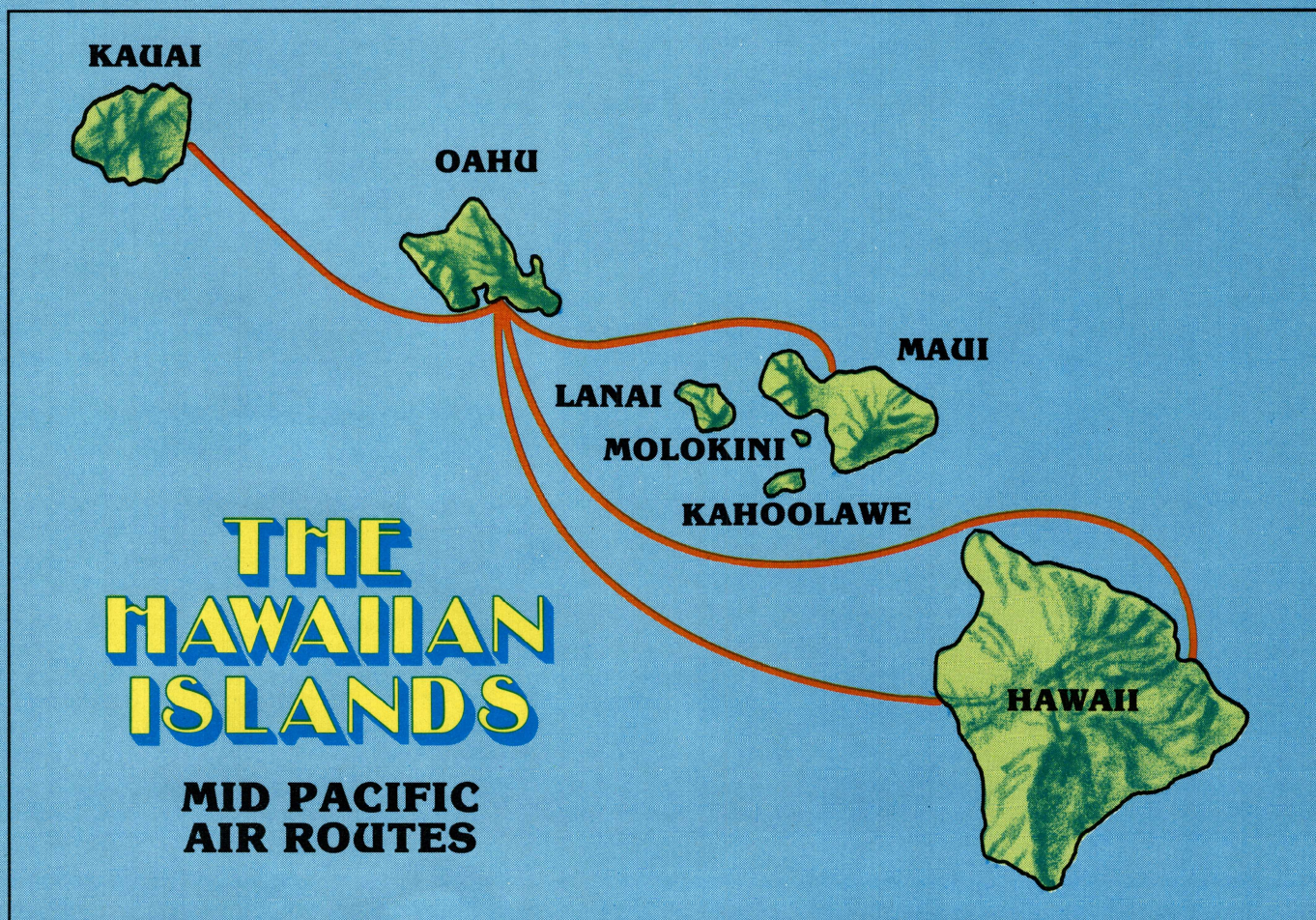
The following sites are along the Makaha coast and usually require a 30 to 45 minute drive from Honolulu to the marina at Waianae. **Big Mouth Cave**, off Lahi Lahi Point, is open on three sides and is

about 30 by 50 feet inside. Yellow cup corals line the ceiling and empty sea-shells can be found on the sand bottom at 90 feet. The **Mahi**, an intact, 190 foot minesweeper, was deliberately sunk on the western coast near Waianae to create an artificial reef and dive site. Resting on a 90 foot sand bottom, the **Mahi** is fast becoming home for a variety of fish. Divers can enter the wreck's open compartments for exploration or wreck photography. The **Airplane Wreck** was also deliberately sunk in 70 feet on the western coast. The intact fuselage, wings and tail assembly of the twin-engine, 14 passenger DeHaviland aircraft are already attracting marine life. We can thank Ken Taylor of South Seas Aquatics and the other dive operators who helped him, for these interesting wreck sites.

Several shallow sites are used for second dives. These include **Makaha Caves**—a labyrinth of lava tubes in 10 to 30 feet—and the reefs and ledges of **Mai-li**, **Nanakuli** and **Pokai Bay Reef**.

## DIVE OPERATIONS

Aloha Dive Shop is at the Koko Marina Shopping Center. Owner Jackie James offers daily four and one-half hour trips for three to nine divers on her 30 foot custom dive boat. Departure times are 8:00 am and 1:00 pm, and all dive destinations are near Maunalua and Hanauma









# THERE'S MORE TO HAWAII

Dive our warm, clear waters and discover spectacular lava formations, incredible fish. Hawaii has more kinds of dives, for divers at all levels of skill. And – thank goodness! – more time for diving. No matter which island you visit, you can be in the water fast.

Explore Oahu's offshore wrecks, and a bay that is a partially collapsed volcano. In the shelter of Hawaii's three largest mountains, Kona's waters are calm and clear, with spectacular drop-offs 100 yards from shore.



Kauai has intriguing lava tubes, teeming marine life, and a 100-foot dive over beds of rare black coral. Ringed by nearby islands, Maui offers a host of dives, from Lanai's lava cathedrals, to Molokini – a marine preserve at the rim of a submerged volcano whose outer wall drops 300 feet.

Sooner or later, you have to come up for air. That's when you discover how much more Hawaii



has to offer. Each island is unique, from Oahu's exciting nightlife, to Lahaina – Maui's historic whaling port. We've got a national park with active volcanoes on the Big Island, and a baby Grand Canyon called Waimea on Kauai. And some of the world's best beaches for surfing, windsurfing, snorkeling, sailing, and outrigger canoeing.

What's more, we've got a tradition of aloha a thousand years old, begun by a people for whom diving was a way of life. It's still going strong – just one more reason to make your next dive Hawaii.

Send for more information.

**DESTINATION  
HAWAII**

P.O. Box 65  
Aiea, Hawaii 96701

Name

Address

City/State/Zip





## Oahu

### Aloha Dive Shop – Koko Marina

Hawaii-Kai, Honolulu, Oahu, HI 96825  
(808) 395-8882 or 395-5922  
"Gateway to Hanauma Bay." Scuba resort certificates, tours, boat, sales, rental, NASDS, PADI.

### American Dive Hawaii

P.O. Box 88161, Honolulu, HI 96815  
Open every day, 7:30 am–5:30 pm. PADI five-star training facility, DVI member, custom dive boats, two convenient locations to serve you – Oahu & Maui!

### Dan's Dive Shop, Inc.

1382 Makaloa Street, Honolulu, HI 96814  
(808) 941-2284

Nationally recognized scuba certifications, rentals, retail sales, repairs, tours. 1,000 satisfied customers a month since 1971. We guarantee our work.

### Hawaiian Divers

2344 Kamehameha Highway, Honolulu, Oahu, HI 96819.

Daily dive charters & all levels of PADI/NAUI instruction, all done with professionalism, personal attention and lots of aloha!

### Leeward Dive Center

85979 Farrington Highway, Waianae, HI 96792 (808) 696-3414

Shipwrecks, giant caves, night dives, air, repairs, instruction, charters, all available. Four boats daily to serve you and your diving needs.

### Sea Urchin Scuba Shops

Three locations to serve you.  
AIEA – 98-025 Hekaha Street, Aiea, HI 96701 (808) 487-9060

WAHIAWA – (808) 622-4532

KANEOHE – (808) 235-3877

PADI five-star facilities, boat dives, air, rental equipment & certification courses.

### South Seas Aquatics

1050 Ala Moana Blvd., Honolulu, HI 96814. (808) 538-3854

Hawaii's most complete pro shop, serving the islands since 1962. Dive the 165-foot-long minesweeper wreck, lava tubes and coral reefs.

### The Scuba Shop

20 Sand Island Road, Honolulu, HI 96819  
(808) 845-4561

Custom boat dives – specializing in Hawaiian shell collecting, artifacts & spear fishing. For the advanced diver. For more information, give us a call.

### Waikiki Diving, Inc.

#### Waikiki Diving School

420 Nahua Street, Honolulu, HI 96815  
(808) 922-7188 or 922-7189

Waikiki's only full-service PADI training facility. Dive off our new 25' dive boat, sales, rentals, charters, free brochures.

# GET MORE OF HAWAII

## COME TO THE ISLANDS' DIVING PROFESSIONALS

## Maui

### Blue Chip Charters

P.O. Box 5159, Lahaina, Maui, HI 96761  
(808) 661-3226

Molokini Crater: the best dive site. Blue Chip Charters: the best boat & equipment. Valerie Woods: the best instructor/captain. Blue Chip Charters: the best!

### Capt. Nemo's Ocean Emporium

700 Front St. on Dickenson,  
P.O. Box 11267, Lahaina, HI 96761,  
(808) 661-0429

A full-service dive store. Sail/dive on MeA'U, a luxurious 42' catamaran. Fast boats for advanced dives. Great food. Family fun. Personal service. Mike Tansey, Maui's master instructor, PADI.

### Central Pacific Divers

780 Front Street, Lahaina, Maui, HI 96761  
(808) 661-8718

Daily inter-island diving trips from Hawaii's largest and most comfortable diving boats. A full-service dive shop. Five-day scuba classes. Undercurrent #1 recommendation.

### Dive Maui, Inc.

Lahaina Marketplace  
Lahainaluna Road, Lahaina, Maui, HI 96761 (808) 667-2080

Two boats. Daily tours to Maui, Lanai & Molokai for scuba & snorkeling. NAUI, PADI, SSI full-service facility. Free snorkel maps.

### Lahaina Divers, Inc.

710 Front Street, Lahaina, Maui, HI 96761  
(808) 667-7496 or 661-4505

We run daily inter-island trips to the best sites in Hawaii. Dive with small, personalized groups and have the experience of your life!

### Scuba Schools of Maui

1000 Limahana Place, #A, Lahaina, Maui, HI 96761 (808) 661-8036

Flexible scheduling for all certification courses to fit your needs. All dives are done on our custom dive boat.

### The Dive Shop

P.O. Box 917, Kihei, Maui, HI 96753  
(808) 879-5172

Complete pro shop, air, repair, instruction & daily charters. Come share Hawaii's beauty with us.

## Kauai

### Aquatics Kauai

733 Kuhio Highway, Kapaa, Kauai, HI 96746 (808) 822-9213

A full-service PADI training facility. Daily boat trips. We specialize in underwater photography & video taping in Beta or VHS format.

### Fathom Five Divers

P.O. Box 907, Koloa, Kauai, HI 96756  
(808) 742-6991

Take a dive with Fathom Five & discover why so many return to repeat the experience. Complete dive center, daily charters.

### Sea Sage, Ltd.

4-1378 Kuhio Highway, Kapaa, Kauai, HI 96746 (808) 822-3841

Sea Sage offers night dives for fish & lobster as well as providing daily boat dives to Kauai's best diving spots.

## Hawaii (the Big Island)

### Gold Coast Divers

P.O. Box 2064, Kailua-Kona, HI 96740  
(808) 329-1328 or 329-9266

Two full-service stores. We invite you to join us for the finest diving the Kona Coast has to offer.

### Jack's Diving Locker

P.O. Box 5306, Kailua-Kona, HI 96740  
(808) 329-7585

Skin & scuba instruction; join our dive charters and see the best of Kona.

### Kona Coast Skin Diver, Ltd.

75-5614 Palani Road, P.O. Box 1780  
Kailua-Kona, HI 96740 (808) 329-8802  
Professional experience on the KONA COAST since 1968. For more information & our 24x18 poster, send \$5.

Send for more information.

## DESTINATION HAWAII

P.O. Box 65  
Aiea, Hawaii 96701



circle #124 on Reader Service Card



Bays. Her dive sites include **Angler Fish Reef**, a 55 foot ledge with lots of fish; **The Craters**, twin craters at 50 feet with a shallow reef and tropical fish; **Turtle Canyon**, where you usually see turtles at depths of 30 to 40 feet; and weather permitting, Jackie's Mountain.

Instruction is available for up to four students and can begin almost any time with one day's notice. Classes begin at 8:00 am or 1:00 pm, depending on the student's needs. The classroom is informal; on the beach, on the dock and on the boat. The diving is usually at Hanauma Bay beach or from the boat. Aloha Dive Shop doesn't have a hotel package at this writing, but they have three new vans for pickup at all Waikiki hotels.

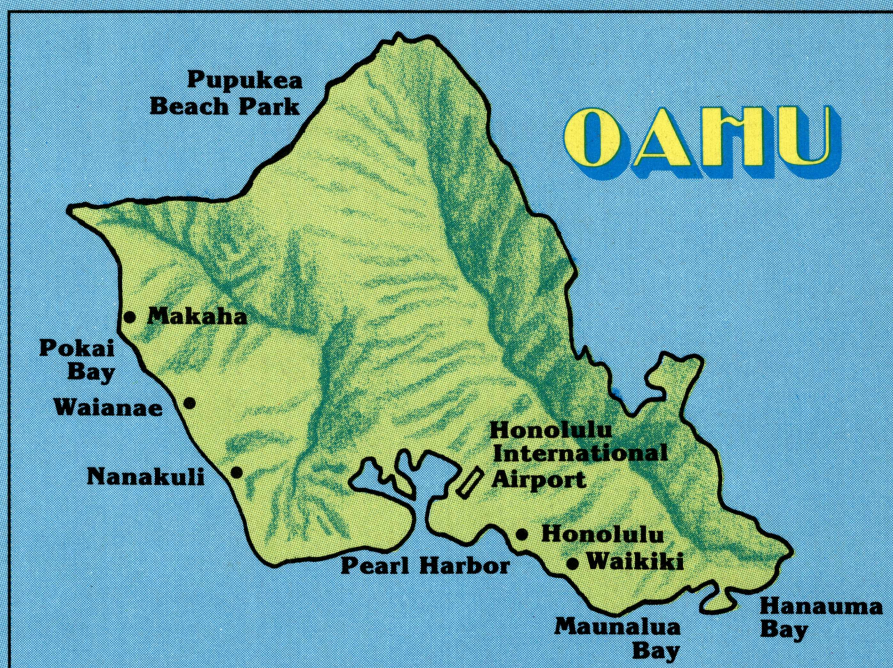
American Dive Hawaii, owned by Jim and Shelly Cileiti, offers snorkeling trips and beach and boat diving. Snorkel and beginning dive trips are usually to Hanauma Bay, in depths of 10 to 60 feet. Boat dives from their 19 footer take three to six experienced divers to the *Mahi* for the first tank and to a series of shallow coral caves for the second tank. Other sites include Magic Island reef dives at 60 and 30 feet or to Hanauma Bay by boat. An additional 12 passenger, 28 foot custom boat should be in operation when this article goes to press, so the choice of dive sites may be expanded.

Basic open water courses run weekly from Tuesday to Friday, with average class sizes of 4 to 10 students. One or two days' notice is usually enough, but more may be needed. Instruction is given in a casual, living room style or under a palm tree and the first dive is from a beach. Custom packages that include hotel, diving, rental car and air fare can be arranged upon request and vans are used for pickup at Waikiki hotels.

Dan's Dive Shop is more of a Waikiki day tour operation than a traditional dive operation. The dives are slow, controlled and very much for beginners. Dan's specializes in giving a good introductory dive experience. Beach dives with an average total swim of 120 yards and four hour boat trips are available seven days a week. The boat dives are from large 61 to 94 foot catamarans that can carry up to 149 persons to **Rainbow Reef**, off Magic Island by Waikiki.

Reservations for the beginning dive tour should be made by 5:00 pm the day before. For basic certification, call 24 to 72 hours ahead of time. Classroom work is done at the shop with audio-visual aids. Four hotel swimming pools and the shallow waters of Hanauma Bay are also used for instruction. Advanced instruction is available, but should be arranged as far in advance as possible. Six vans are used for pickup at all Waikiki hotels.

Hawaiian Divers, owned by Bill Burch, is a large dive shop with a varied inventory, the second largest compressor in the U.S. and a drive-up window for air fills. Both shore and boat dives are offered.



## OAHU DIVE OPERATORS

**Aaron's Dive Shop**  
39 Maluniu Ave.  
Kailua, HI 96734  
(808) 261-1211

**Aloha Dive Shop—Koko Marina**  
Hawaii-Kai, Honolulu, HI 96825  
(808) 395-8882

**American Dive Hawaii**  
3684 Wai'ala'e Ave.  
Honolulu, HI 96816  
(808) 732-2877

**Bojac Swim and Scuba**  
94-366 Pupupuani St. #117  
Waipahu, HI 96797  
(808) 671-0311

**Dan's Dive Shop, Inc.**  
1382 Makaloea St.  
Honolulu, HI 96814  
(808) 941-2284

**Hawaiian Divers**  
2344 Kamehameha Hwy.  
Honolulu, HI 96819  
(808) 845-6644

**Hawaiian Sea Adventures**  
98-316 Kam Hwy.  
Aiea, HI 96701  
(808) 487-7515

**Leeward Dive Center**  
85-979 Farrington Hwy.  
Waianae, HI 96792  
(808) 696-3414

**Oahu School of Diving & Pro Shop**  
95 S. Kam Hwy.  
Wahiawa, HI 96786  
(808) 622-2283

**Sea Urchin Scuba Shop**  
98-025 Hekaha St. #8  
Aiea, HI 96701  
(808) 487-9060

**Sea Urchin Scuba Shop**  
46-216 Kahuhipa Street  
Kaneohe, HI 96744  
(808) 235-3877

**South Seas Aquatics**  
1050 Ala Moana Blvd.  
Honolulu, HI 96814  
(808) 538-3854

**Steve's Diving Adventure**  
1860 Ala Moana Blvd.  
Honolulu, HI 96815  
(808) 947-8900

**The Scuba Shop**  
20 Sand Island Rd.  
Honolulu, HI 96819  
(808) 845-4561

**Waikiki Diving, Inc./  
Waikiki Diving School**  
420 Nahua St.  
Honolulu, HI 96815  
(808) 922-7188



The average swim for a shore dive is 50 yards or less, and the daily boat dives average three hours with ice water and fresh pineapple served on board. The new 21 foot Radon takes up to six divers to the *Mahi*, Makaha Caves and other sites. In summer, they can take you to **Shark's Cove** (also known as Pupukea Beach Park on Oahu's north shore), which has an array of archways and tunnels. Hotel pickups are made with a van. One day's notice is enough for most classes. Small, personalized groups are preferred, so several different classes may be in session at any one time. The shop has a classroom and introductory dives are made in an enclosed saltwater pond at Magic Island. Advanced instruction up to assistant instructor, as well as NAUI, ITC and PADI specialty courses are also available.

Leeward Dive Center, owned by Pete Basabe, specializes in boat dives for up to eight divers aboard a 24 foot Radon or a 33 foot cabin cruiser. Sites visited include the *Mahi*, Airplane Wreck, Makaha Caves and others. The average trip takes four hours and an ice chest and soft drinks are provided. They offer hotel pickup and plan a hotel package.

Instruction up to assistant instructor is available for classes up to 12 students and specialty courses are also offered. Private lessons are available on 24 hour notice. An open air classroom and a pool or beach (depending on the conditions) are used for beginning underwater work.

Sea Urchin Scuba Shops, Hawaii, owned by Brad Revis, has shops in Aiea, behind the Cutter Ford dealership, in Kaneohe and in Wahiawa. They use a 16 foot Zodiac, *The "D" Team*, to take four to eight experienced divers on half-day trips. They can launch at any beach park, giving them access to a large number of sites. They sometimes offer a barbecue lunch on the beach. Interisland trips are scheduled monthly—they take the Zodiac on the plane.

A Five Star PADI facility, Sea Urchin offers instruction from resort courses to full ITC, with flexible timing. Vans and jeeps are used for pickup if needed.

South Seas Aquatics, Hawaii's oldest dive shop, owned by Ken Taylor, offers instruction, repairs, rentals and boat diving seven days a week. The basic tour features two dives at two different locations each day, for up to 12 certified divers. The tour includes hotel pickup, scuba gear and snacks and beverages aboard the 28 foot Radon, *South Seas*.

The first day of a typical three day tour might include a 90 foot dive to the wreck of the *Mahi*, followed by a 30 foot dive on a coral reef or through the submerged lava tubes of Makaha Caves. The second day may begin with a 70 foot dive to an airplane wreck, followed by a shallow dive on Pokai Bay Reef. And, on the third day, you might dive 65 or 85 feet to Nanakuli Ledge, followed by a 30 foot

dive to Maili Ledge.

Groups should investigate South Seas Aquatics' Hawaii Dive Adventure. This scuba tour includes transportation to and from Honolulu airport, six night's accommodations, five days of boat diving and transportation to and from the dock. A 10 percent commission is available to the organizer, and the accommodations and diving are free for the 12th person. While the diving schedule is preplanned, it can be customized for groups of four or more with a minimum stay of three days. The Scuba Shop, operated by Scott and Cathy Cade, schedules boat dives every Friday, Saturday and Sunday for up to eight divers, but will go out anytime with a two diver minimum. These artifact, shell collecting, spearfishing and lobstering dives are for certified, advanced divers only. Artifacts—such as bottles, coins or cannon balls—are Scott's specialty. SDM's Technifacts editor, E.R. Cross, has written about artifacts found by Scott and other divers from The Scuba Shop. Look back to the 1/82, 9/83 and 10/83 issues of SDM.

The Scuba Shop uses a 21 foot Boston Whaler for most trips, but larger boats—up to the 165 foot *Holika* are available if needed. A wide range of certification and specialty courses are available. The first dive of the basic course is in a pool, with subsequent dives in the ocean.

Waikiki Diving, Inc. is Peter Tsai's PADI Training Facility, behind the International Marketplace, across from the Outrigger Hotel. Waikiki Diving uses the 25 foot *Julie* to take two to six divers to Maunaloa Bay, between Diamond Head and Koko Head or to Pupukea Beach Park during the summer. Boat trips take up to five hours, so divers should bring lunches. Shore dives are usually at Hanauma Bay, in about 15 to 50 feet of water. They have three vans for hotel pickups at 8:30 am and 1:00 pm. Snorkeling tours are also available for non-divers.

# MAUI

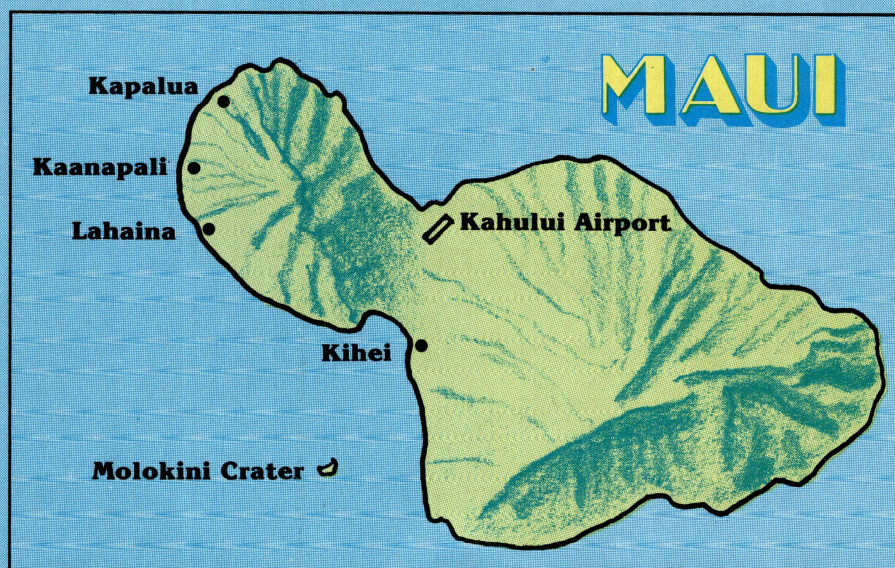
From the air, you see two volcanic mountains joined by a valley isthmus that once lay under the sea. Haleakala's last volcanic eruption occurred more than 200 years ago. You can soar into the crater on Papillon Helicopter's Odyssey tour, or you can drive to the rim of the crater more than two miles above sea level. For the adventuresome, rent a downhill cruiser bike—the kind with mega-brakes—and coast 38 miles to the beach. "Maui no ka oi," is the slogan of this island. It means "Maui is best."

We stayed at the Maui Marriott, a beautiful resort hotel in Kaanapali, a few miles north of Lahaina. All rooms have a beach view, and the flower lined walkways to the rooms look down on fountains and large trees growing up from the lobby. The lobby and ground floors consist of shops, three restaurants and two bars.

The historic waterfront town of Lahaina is about a 45 minute drive from the airport. It has retained much of the architecture of its brief history as a whaling center. Small shops line Front Street, along the shoreline and there are several dive operators in this area. We were able to purchase refrigerated Kodak Professional Ektachrome at Nagamine Camera & One-Hour Photo. In addition to a complete line of topside cameras and film, Nagamine also stocks underwater photo equipment.

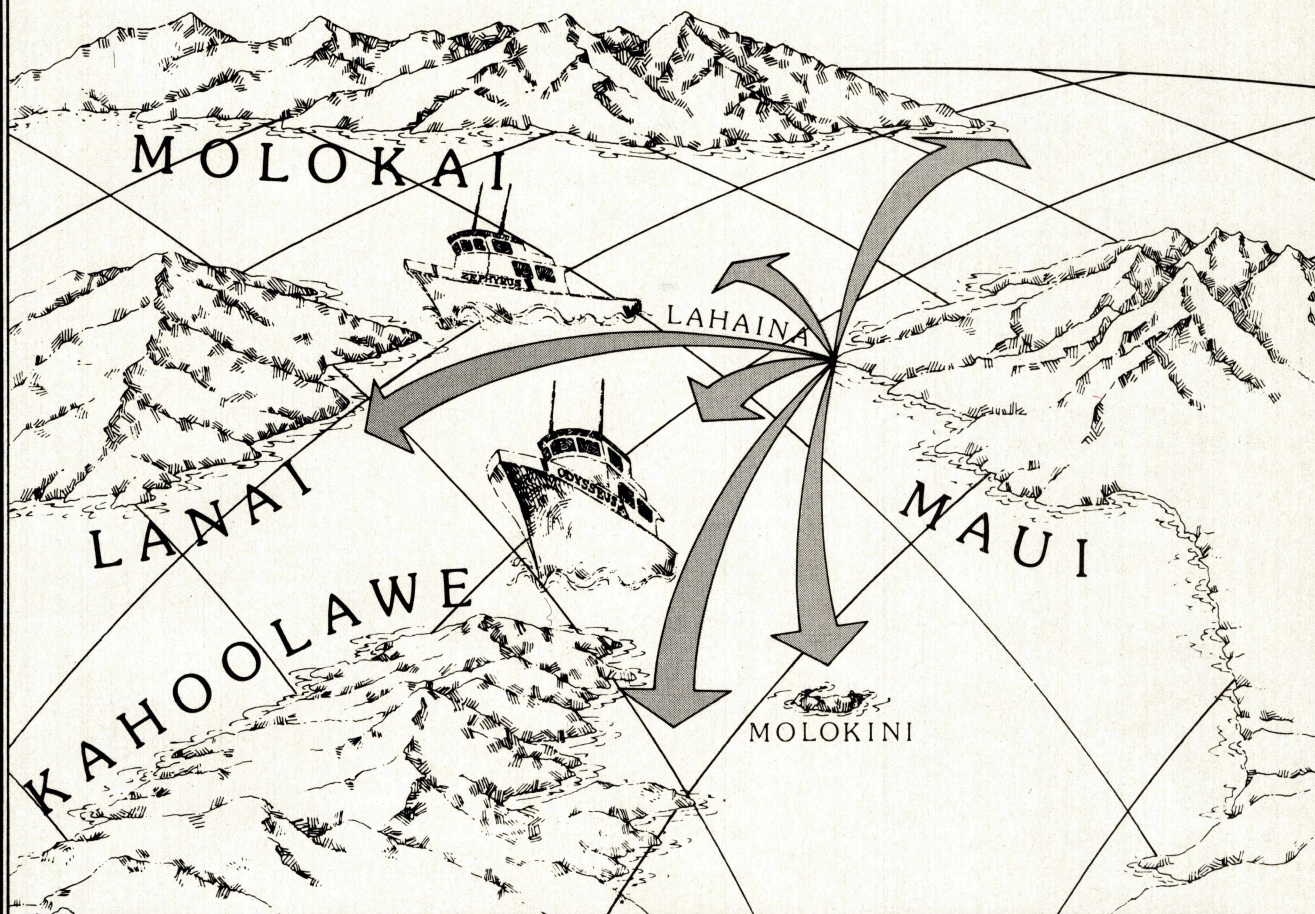
## DIVE SITES

Boat trips from Maui are often to the nearby islands of Lanai, Kahoolawe and Molokini. While the boats leave from the leeward side of Maui, they must cross open water to reach these islands. Since the trade winds increase in the after-





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noons, the boats leave as early as 7:00 am to complete the trip by early afternoon. We suggest getting a room with a kitchen if you want breakfast in your room before the early departure.

Lanai provides more dive sites than we can possibly describe. Her rugged shores form **First Cathedral** and **Second Cathedral**—large caves with elaborate entrances and archways that harbor fish, yellow cup corals, shrimp, colorful encrusting sponges and other marine life. With maximum depths of about 60 feet, these are popular dives.

**Shark Fin Rock** juts up through the surface as if it were a giant shark's fin. Beneath the surface, you will find octopus and hundreds of bright yellow lemon butterflyfish. At **Fish Rock**, we heard the squealing sounds of dolphins. We swam out into the open and were surrounded by over 200 graceful dolphins which stayed just beyond the optimum distance for our 15 mm lenses. We did, however, get one photo showing 49 dolphins! Other sites, such as **Wash Rock**, **Nob Hill** and **Monolith Rock** are equally exciting.

**Molokini Crater**, the top of a dormant volcano, is a crescent-shaped island that is now a marine preserve. Located near Wailea, just off Maui's west coast, it has many dive sites. Over a half mile across, and with depths from 10 to 100 feet, it is home for some special marine creatures. Two large, friendly moray eels—Garbonzo and Freebee—have trained visiting divers to feed them daily. And, only 100 feet from the eels' lair, at about 65 feet, you will find small whitetip reef sharks in their caves.

Maui also has excellent dive sites for shore and boat diving. **Kapalua Bay**, a protected bay on the north side, is an easy, 25 foot beach dive featuring interesting lava formations, a natural archway and reef life. On the south side, **La Perouse Bay**, another protected preserve, is loaded with marine life. And, on the west side, **Black Rock** (by the Sheraton) is an excellent night dive site. It harbors colorful parrotfish, yellow tangs, Moorish idols and unicorn fish. At night we found Spanish dancers, zebra morays and shovel nosed lobster. These are but a few of Maui's many sites.

## DIVE OPERATORS

Most of Maui's dive operators are on the leeward coast, from Kapalua Bay down to Kihei, with the majority in Lahaina. All of them dive the islands of Lanai and/or Molokini as well as local sites.

Blue Chip Charters is based at Kapalua Bay Hotel. Captain Valorie Woods, the owner, specializes in exclusive instruction as well as shore and boat diving. Beginning with a free lesson in the hotel pool, students can advance to shore diving at the hotel beach. PADI and NAUI certification courses are offered on a private basis. Classwork is done in a hotel conference room, multimedia facility or

beneath a palm tree by the ocean. Refresher beach dives are available daily and open water referrals (take basic training at home and finalize open water training here) are invited. Snorkel, scuba and some U/W photo equipment are for rent, but there is no equipment for sale.

Private boat charters, on the 22 foot Boston Whaler, *Revenge*, take up to four divers to Molokini Crater, a Blue Chip Charters' specialty. The boat is launched at Kihei and trips take four hours. Fresh Hawaiian fruits, roast beef, cheese and

French bread are served aboard.

Captain Nemo's Ocean Emporium, owned by Michael Tansey, a PADI master instructor, offers shore dives and relaxed six hour trips aboard the 42 foot luxury catamaran, *Me A'U*. The Emporium is at Front Street, Lahaina, and the boat leaves from Kaanapali Beach at 8:30 am and returns around 3:00 pm. If guests have no diving experience, they can receive snorkeling and introductory scuba instruction aboard the boat during the leisurely sail to Lanai.

Nemo's takes up to eight divers on dive trips and can take larger groups of mixed snorkelers and divers. *Me A'U* is anchored in shallow water near a drop-off so both groups can be in the water. The goal of the mixed groups is to serve families who wish to combine the boat ride with snorkeling or diving. Both breakfast (hot strudel, juice and fruit) and lunch (picnic buffet of meats, chicken, etc.) are served aboard. Two 23 foot boats are also available for up to six advanced divers for fast trips to special locations. Divemasters also have a diver photo service.

Instruction for certification is flexible and mostly private. They take their A/V equipment and teaching aids to the student's hotel room at times convenient to the student. Free snacks are served in the shop which has a full line of dive-related merchandise. Mike also does scuba and camera repairs.

Central Pacific Divers, on Front Street, owned by Jane and Pete Cambouris and John and Kathy Kelly, specializes in boat diving. The 43 foot *Odysseus* and new 45 foot *Zephyrus* carry up to 14 divers on six hour two and three tank trips. Typical dive destinations are Cathedrals I and II, Shark Fin Rock, Wash Rock and Fish Rock on the coast of Lanai; Molokini Crater; and to the large cave and spectacular reef life off Kahoolawe Island.

Because the boats are large, divers—especially U/W photographers—have ample space for their equipment. Most of the crew members are U/W photographers. Byrd Gleason offers still and Eric Le Feuvre offers video diver photo services. Certified divers can choose between guided dives or being left alone to dive with their buddy. Lunches are served picnic style, complete with sandwiches, vegetable sticks, dessert, fruits and beer for after the dives.

Closely supervised introductory dives are available for one to six students. And, for certification, the five day scuba class consists of classroom work with audio/visual materials, eight beach dives and two boat dives.

Dive Maui Incorporated in downtown Lahaina, owned by Leslie Sternberg, offers shore dives with an average swim of 20 yards and boat trips lasting three to five hours. Trips are run twice a day, every day, aboard the 30 foot *Dive Maui*, 20 foot *Ulani* or 23 foot *Sundance*. Lunches

## MAUI DIVE OPERATORS

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(808) 661-4885

**Blue Chip Charters**  
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(808) 661-3226

**Captain Nemo's Ocean Emporium**  
P.O. Box 11267  
Lahaina, HI 96761  
(808) 661-0429

**Central Pacific Divers**  
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Lahaina, HI 96761  
(808) 661-8718

**Dive Maui Incorporated**  
Lahaina Marketplace  
Lahaina Luna Rd.  
Lahaina, HI 96761  
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**Hawaiian Watercolors**  
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(808) 879-3584

**Kihei Sea Sports**  
Kihei Town Center  
Kihei, HI 96753  
(808) 879-1919

**Lahaina Divers, Inc.**  
710 Front St.  
Lahaina, HI 96761  
(808) 661-4505

**Maui Dive Shop**  
P.O. Box 1018  
Azeka Place, Kihei, HI 96753  
(808) 879-3388

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## OAHU

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### Aloha Dive Shop

Koko Marina Shopping Center  
Honolulu, HI 96825  
(808) 395-5922

### 5 American Dive Hawaii, Inc.

★ 3684 Waialae Avenue • Honolulu, HI 96816  
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### Hawaii Sea Adventures

98-316 Kam Highway • Aiea, HI 96701  
(808) 487-7515

### Hawaiian Divers

2344 Kamehameha Highway • Honolulu, HI 96819  
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### 5 Sea Urchin Scuba Shop

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### South Seas Aquatics

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Lahaina Marketplace, Lahaina Luna Road  
Lahaina, HI 96761 • (808) 667-2080

### Lahaina Divers, Inc.

P.O. Box 1547, 710 Front Street • Lahaina, HI 96761  
(808) 661-4505

### Maui Dive Shop

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Kihei, HI 96753 • (808) 879-3388

### Scuba Schools of Maui

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(808) 661-8036 or 667-7500

## HAWAII

### Gold Coast Divers, Inc.

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King Kamehameha Hotel • Kailua-Kona, HI 96740  
(808) 329-9266

### Kona Coast Skin Diver, Ltd.

75-5614 Palani Road • Kailua-Kona, HI 96740  
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on board include submarine sandwiches, potato salad and drinks. Dive sites at Lanai include the Cathedrals and a turtle breeding ground and lush coral reef at **Keamuki**. And, off Maui, they dive **Shark Pit** to visit the four foot whitetip, Bruce.

NAUI certification up to instructor and PADI certification up to assistant instructor is available on 24 hour notice. But when booking from the mainland, give ten days' notice. DMI handles different levels of instruction on the same boat by assigning different instructors to students at different learning levels. And, for non-divers, they have snorkel picnic cruises. A dive/fly/drive package is available which includes six days, seven nights and three days of diving. Write for details.

Lahaina Divers is on Front Street and offers daily half day boat trips for certified divers and students and shorter trips for introductory dives. Depending on the number of divers (from 2 to 20), owner Blain Roberts can send out the 43 foot *Réliant*, 24 foot *Argonaut* or 25 foot *Argonaut II*. Their fast boats get you back by noon. Dive sites include the Cathedrals, Molokini Crater and Shark Fin Rock.

Resort introductory and scuba review courses, for one or more students, are conducted daily. The four day certification course, for two or more students, is run weekly with one week's notice requested. The advanced certification course requires a week's notice and a minimum of two students.

Scuba Schools of Maui, several blocks north of Front Street, specializes in personalized service for small groups. For the daily, four hour boat trips for one to six divers, owner John McCarthy uses the *Easy Diver*, a 21 foot Radon, for trips to the Cathedrals, Molokini Crater and other sites. He offers hotel pickup if you stay in West Maui.

Instruction includes introductory dives, refresher dives and a four day certification course. There is a small classroom at the shop for lectures and underwater instruction begins in a pool and progresses to the boat. They also give a free pool lesson at Kaanapali Shores Hotel.

The Dive Shop, near Kihei, is a full service shop owned by Linda Kowalsky. It is closer to Molokini Crater than the other shops, so the boat trip is shorter. Although she frequently dives Molokini, Linda also dives the Cathedrals and several sites on the south side of Maui.

The Dive Shop specializes in four hour boat trips for small groups of up to six divers aboard a 25 foot Boston Whaler. Snacks include fresh fruit, chips, cookies, sodas, juice and beer for after the diving. Guided shore dives, with a swim of 25 yards or less, are also available. Hotel pickups are made on a limited basis.

Certification and resort courses are available with one day's notice. Instruction is held in the living room and patio of a home; diving begins at a sheltered beach and ends on the boat.

# HAWAII

There are many things to do on the big island of Hawaii. You can golf by the sea on seven courses; you may be able to safely watch glowing lava bubbling in Mauna Loa's famous crater; ski on the cold mountain top; or, you can go deep sea fishing. And, when not occupied with these and many other activities, it's time to go diving.

As most dive operators are clustered around the Kailua-Kona area, and we didn't want a rental car, we stayed at the King Kamehameha Hotel. By the Kailua Pier, the hotel is within walking distance of the three shops we visited. Our hotel room had an excellent view of the beach, the service was superb, an excellent shopping mall and three restaurants filled the first floor and we were within easy walking distance of the waterfront shops and restaurants.

## DIVE SITES

Hawaii is geographically different than the other islands. Lava cliffs dominate much of the coastline and there are few offshore barrier reefs. Depths can plunge down to 100 feet or more within 100 feet

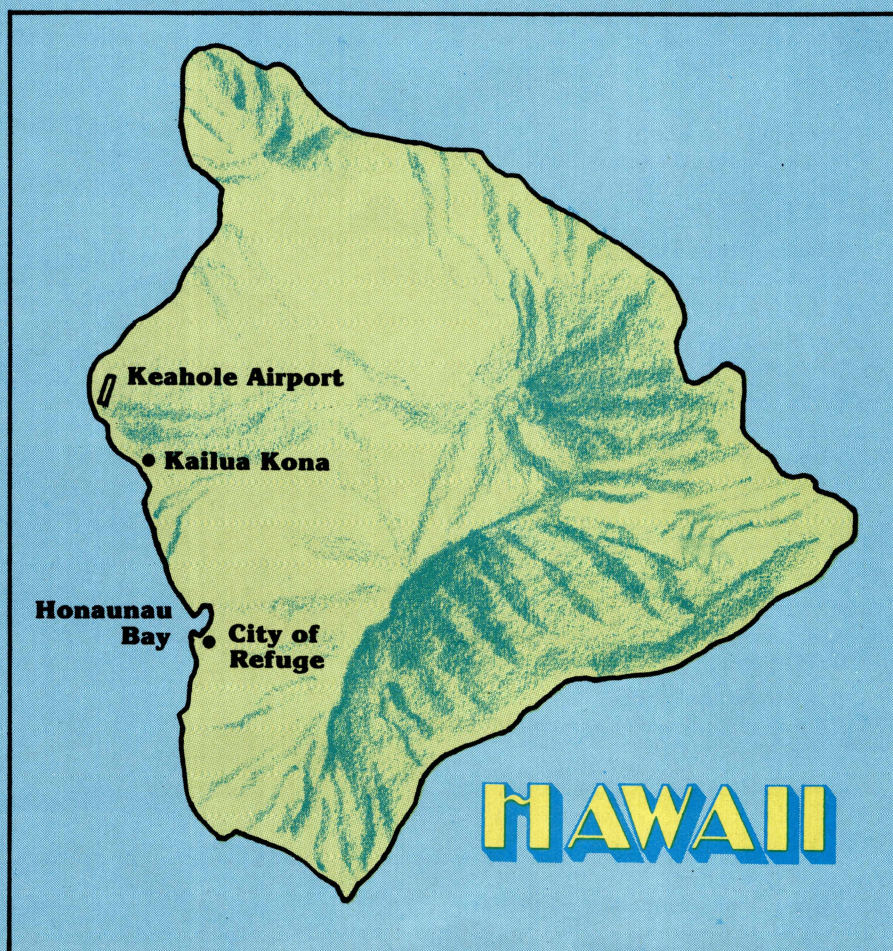
of shore. The coral growth is lushest on this island as there is little agricultural sedimentation. The snorkeling and diving are excellent and the sites close by.

**Honaunau Bay**, by the City of Refuge, is an easy, safe shore dive for snorkelers and beginning divers. You walk across 50 feet of lava rocks and step into the ocean. Yellow tangs are everywhere and red slate-pencil urchins decorate the coral heads ten feet below. **Kaiwi Point** has archways, a drop-off and a whitetip shark can often be found in a small cave.

**Pyramid Pinnacle**, next to a 1000 foot drop-off, rises from 60 to 10 feet and is named for the pyramid butterflyfish that school around it. Hawaii has dozens of other sites for snorkelers and beginning and advanced divers. Kaiwi Point has archways and a variety of fish. The newest advanced site is **Airplane Wreck**, an intact twin-engine aircraft, resting in 90 feet of water.

## DIVE OPERATIONS

Jack's Diving Locker is in the historic Kona Inn Shopping Village, just across from a film processing service. Owner Tina Clothier specializes in "non-scary" introductory shore dives at City of Refuge and other protected areas with a short swim to the dive site. Four hour boat trips, for two to six divers, are run daily to Kaiwi Point; **Archie's Drop-off**, where a





whitetip shark lives in a cave; and other sites featuring caves, archways and fish. A lunch of sandwiches, carrot sticks, fruit juice and ice tea is provided and hotel pickups are made in the Kona area.

Instruction is available for one or more students, with lectures delivered under a palm on the beach. For resort courses, the maximum number of students is three per instructor. And, for basic, open water and advanced diver courses, the maximum is six per instructor.

Jack's sells mostly snorkeling gear, T-shirts, light beachwear, sunglasses and books, because Tina is mostly interested in diving charters. She is currently work-

ing on dive packages with nearby hotels and condos.

Kona Coast Skindiver, Ltd. owned by U/W photographer Jim Robinson, has U/W photo gear as well as dive equipment. Kona offers guided shore dives with a swim of 25 yards or less and boat dives. The 25 foot Radon has four glass viewing ports so two to six divers can see the bottom formations before entering the water. One tank dives take three hours or less, and two tank dives take about four hours. Dive sites include the Airplane Wreck. A diver photo service is available upon request. Snacks are provided on the two tank dives and lunches can be arranged

on exclusive charters. Hotel pickup is available for confirmed reservations.

A training tank is under construction so beginning underwater training can take place at the shop. Introductory dives and certification courses are available, with flexible timing, for one or more students. Free color snorkeling maps are available if you visit the shop. At this writing, an air/condo/dive package with optional rental car is being planned.

Gold Coast Divers, owned by Sandy and Steve Kaiser, is in the King Kamehameha Hotel Mall. They specialize in boat trips for up to 12 divers aboard the 32 foot Radon, *Krackin*, and for up to six

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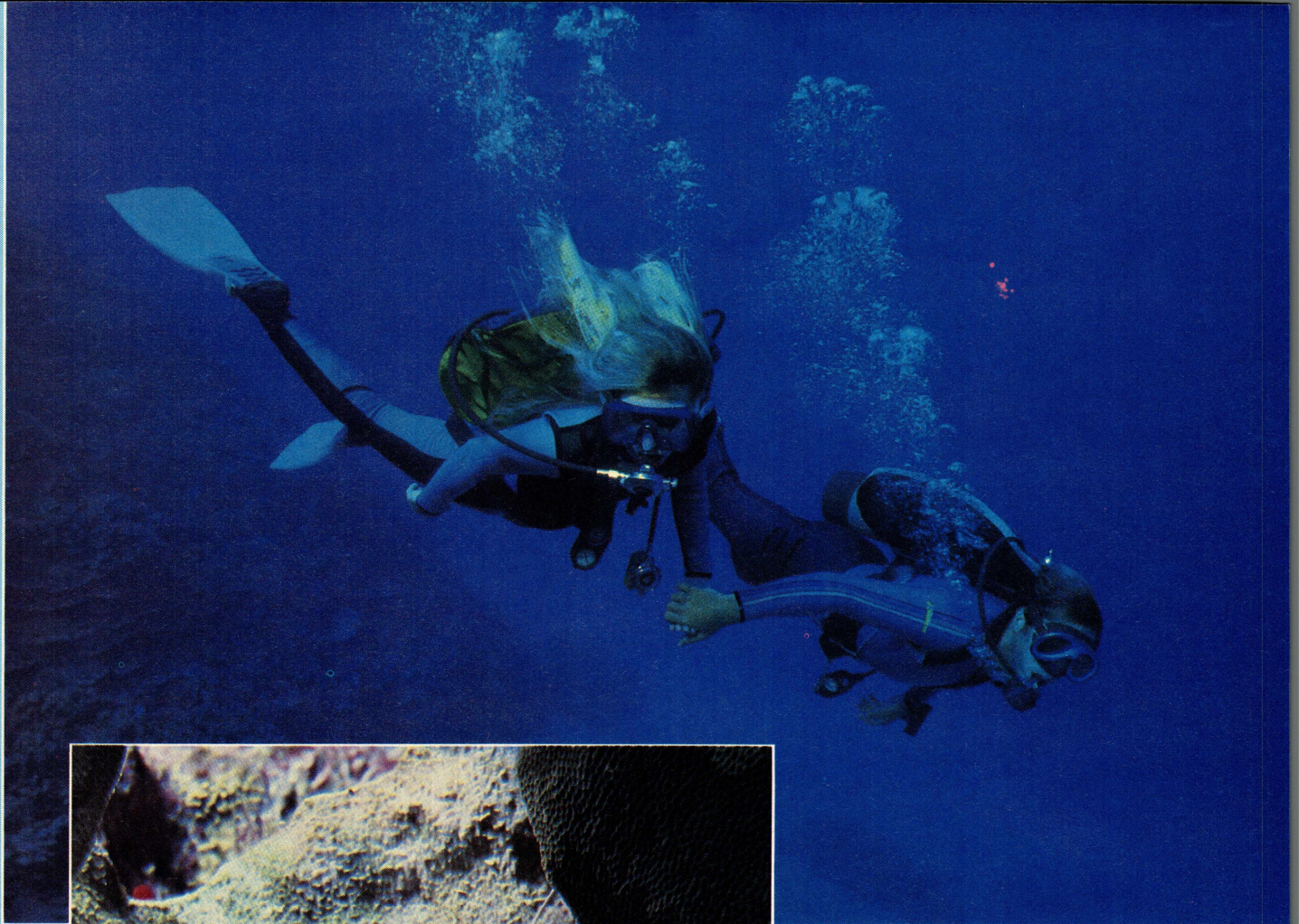
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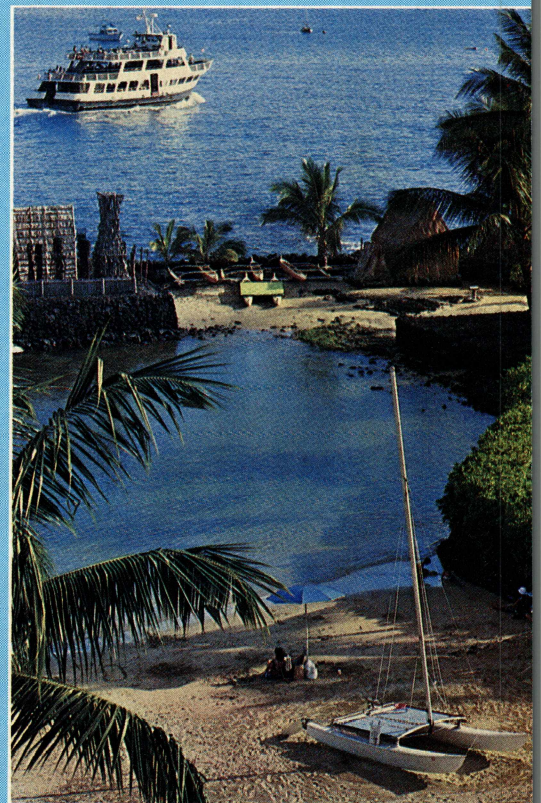
Group rates available





Lionfish, City of Refuge

City of Refuge, Hawaii



View from the Kamehameha Hotel, Hawaii



divers aboard the 26 foot *Pegasus* and 30-foot *Medusa*. The two tank trips take a half day and refreshments are served aboard. Dive sites depend on the weather and the desires of the group and average depths are about 35 to 40 feet. Deeper diving is available for experi-

## KAUI

The interior of Kauai is dominated by volcanic mountains, waterfalls, sharp

ridges and valleys reminiscent of miniature Grand Canyons. Packaged picnic lunches are available for hikers enjoying this beauty on foot. The shoreline has rugged lava formations and sandy beaches. The four story height limit has helped retain the rural atmosphere of this

### HAWAII DIVE OPERATORS

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**Gold Coast Divers**  
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(808) 329-1328

**Jack's Diving Locker**  
P.O. Box 5306  
Kailua-Kona, HI 96740  
(808) 329-7585

**Kona Coast Skin Diver**  
P.O. Box 1780  
Kailua-Kona, HI 96740  
(808) 329-8802

**Nautilus Dive Center**  
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Hilo, HI 96720  
(808) 935-6939

**Ocean Sports Hawaii**  
75-5669 Alii Dr.  
Kailua-Kona, HI 96740  
(808) 885-6064

**Sandwich Isle Divers/  
Night Dive Hawaii**  
73-1263 Lihau St.  
Kailua-Kona, HI 96740  
(808) 329-9188; (213) 782-0329

**Sea Camp Hawaii**  
P.O. Box 568  
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(808) 329-3388

**Sea Paradise**  
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enced divers.

A PADI Training Facility, GCD offers introductory training and certification from basic to advanced and offers several specialties such as photography and night diving. Instruction is given in a hotel conference room and aboard the boats. Timing is flexible.



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Twelve o'clock and all is very, very well. You could be star gazing on your lanai. Or walking barefoot along three miles of moonlit Kaanapali beach. You talk about the incredible fresh cream and chocolate chip coffee service at dinner. You plan out tomorrow or better

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lovely island.

You've probably already seen parts of Kauai in such movies as *South Pacific* and *King Kong*. But if you really want a sightseeing thrill, begin your trip with a helicopter tour. Put on the stereo headset and soar over the ridges, dive through the valleys and hover inside a crater as you listen to music carefully chosen to accent the beauty below.

We stayed at the Sheraton Coconut Beach Hotel in Waipolui. The room, service, meals and luau buffet, entertaining Polynesian revue and festive atmosphere were delightful. The hotel has its own bars, restaurants, gift and convenience

stores. And, as an added bonus, the hotel is within walking distance of Aquatics Kauai Ltd. dive shop, a good steak house and a small shopping center with groceries and fast foods.

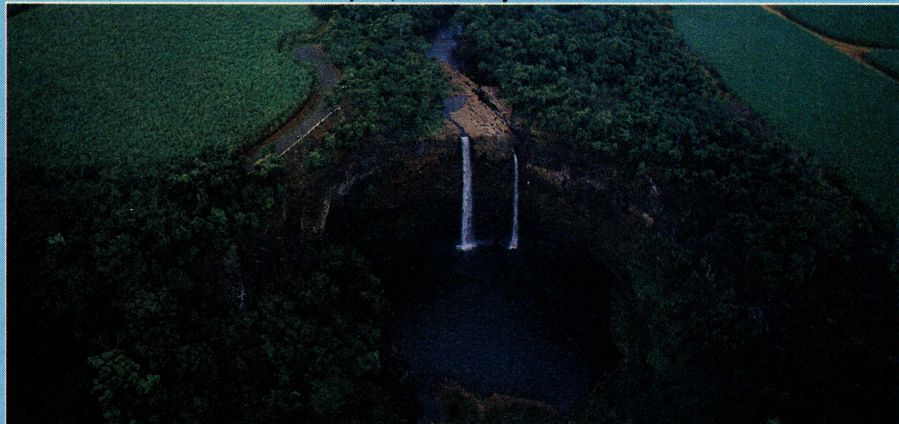
### DIVE SITES

The south side of the island is its lee side and on calm days there is plenty of diving on the east coast as well. The highlights of Kauai diving are the lava formations, turtles and the eels.

**The Aquarium** is a 40 foot dive named for the countless varieties of fish you will see. On night dives at **Ahukini Landing**, in 20 to 60 feet of water, there are plenty

of fish and eels, as well as banded coral shrimp, lobster, 7-11 crabs, Spanish dancers and other nudibranchs. **General Store** is a U-shaped ledge honeycombed with small caverns in 65 to 80 feet of water. You will see large anchors, the remains of a 19th century steamship, black coral and hundreds of lemon butterflyfish. **Oasis Reef** is appropriately named. It has a pinnacle rising abruptly from a barren, flat sand and lava bottom, from 35 feet to within four feet of the surface. We saw a lionfish, several Moorish idols and a large school of false Moorish idols, dotted with a dozen large porcupine fish hanging in midwater like barrage balloons. **Sheraton Caverns** are submerged lava tubes at 35 to 60 feet. There are two main tunnels with several overhead and side openings forming a simple well-lit labyrinth. The caverns house graceful sea turtles and a lobster nursery. **Koloa Landing** is a delightful shore dive often used for introductory in-

Waterfalls, viewed from a helicopter, show why Kauai is known as the Garden Isle.



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Aquatics Kauai, Ltd. features a fly/dive package with lodging at the Sheraton Coconut Beach Hotel, a one hour helicopter tour with South Sea Helicopters, Inc., a rental car and unlimited access to their diving tours. Owner Pete Ricciardi uses his 26 foot Radon to take from three to eight divers to Sheraton Caverns, Koloa Landing, **Black Mountain** and **Kipu Kai**. He can also videotape guests underwater and provide Beta or VHS tape copies. Hotel pickup is available for divers relatively close to Pete's full-service shop.

Instruction includes PADI basic, which requires four days and PADI open water, which requires one additional day. With a two day lead time, and a maximum of five students, courses are in an informal atmosphere in the shop or on the beach where students begin in the ocean.

Fathom Five Professional Divers is a full-service dive shop located at Koloa, next to the Chevron station, near Kauai's southern shore. Owners/managers Terry O'Halloran and Barbara Brundage and their staff offer NAUI and PADI instruction and introductory dives to groups of four or less, usually with only one or two days' notice. The shop classroom accommodates eight, but classes are often conducted outdoor by the dive sites. Their van will pick you up at any of the south shore hotels or condos.

The 24 foot Radon dive boat, *Aukai*, makes daily three hour trips with four to six divers, the captain and an instructor. Departure is at 8:45 am from the shop, Monday through Saturday, with a 1:00 pm return.

Fathom Five has special scuba packages for divers, basic scuba students

and non-divers. The package includes accommodations at Poipu Kai or Sunset Kahili Condominiums, with kitchen, patio and pool and an Avis rental car. Two guided dives a day and one night dive are included for divers; a NAUI or PADI certification course for students; and unlimited use of mask, snorkel and fins for non-divers. Packages can be arranged for five days, four days or three days of diving.

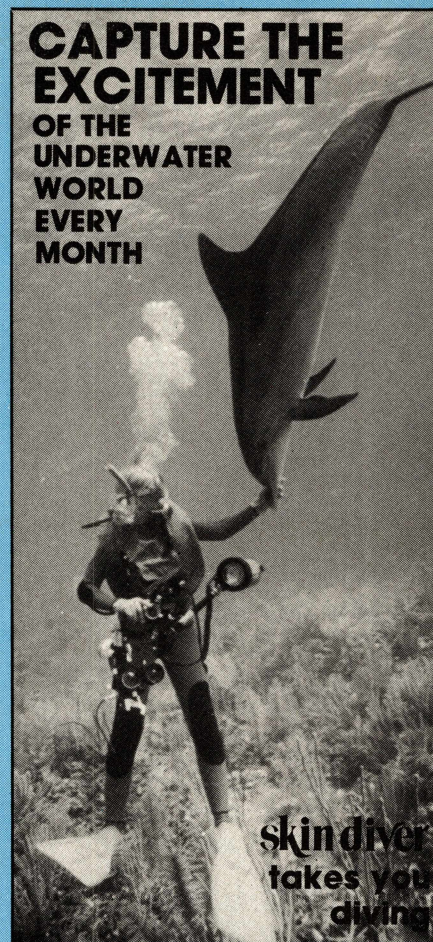
Sea Sage Diving Center, owned by Nikolas Konstantinou, offers both shore dives, with a swim of 30 yards or less, and daily, four hour boat dives for three to six divers aboard an 18 foot Boston Whaler. The three most common sites visited are **North Shore Tunnels**, Ahukini and Koloa Landings. Nik specializes in understanding shark behaviour and helps interested divers in this area, while instructor/divemaster Howard Albers specializes in shells and the marine environment. Both offer a photographic service during the dives.

Introductory dives are available on one day's notice and free introductions are given in hotel pools. Five day certification and advanced specialty courses—such as night diving, U/W comedy photography and marine awareness and conservation—are customized to fit student needs. Underwater instruction begins on the beach in confined water.

### CONCLUSION

Hawaii has long been a favorite vacation spot, and for good reason: Hawaiians know how to show you a good time. To help prepare for your trip, we recommend that you purchase a copy of *Fodor's Hawaii*, *Fodor's Modern Guides, Inc.*, and *Hawaii, A Guide to All the Islands*, Sunset Books. Aloha and good diving!

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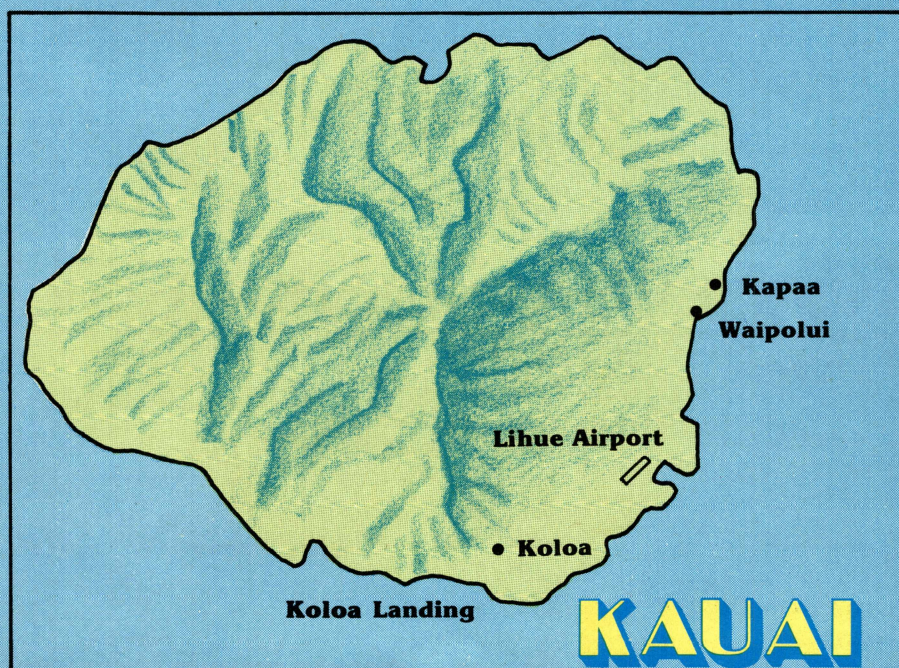
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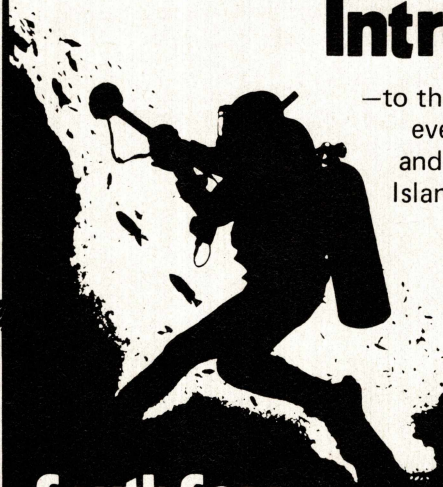
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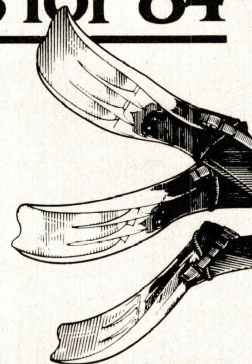
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# Technifacts

BY E.R. CROSS



**T**reasure trove has been defined as money or coin—gold, silver, plate or bullion—which having been hidden, lost or concealed so long that its owner is unknown, has been discovered by accident. It has also been held that treasure trove also includes whatever may constitute riches such as vases, urns, statues and anything which circulates as money. Treasure hunting has gone on since man first realized that some things were more valuable than others and hence were labeled "treasures."

Laws regulating ownership of found treasure have a long and confusing history. Perhaps the earliest reference to who owns a found treasure is in the ancient Hebrew law in biblical writings that seem to state that the owner of the land is also owner of the treasure hidden or lost in the land. This Hebrew law is probably at least

4000 years old. Two thousand years later, during the reign of the Roman emperor Hadrianus, anyone who found treasure on his land was entitled to keep it from all the world except from the rightful owner. If a man found treasure on any land except his own, half the treasure went to the owner of the land and half to the finder. These rules of law regarding treasure formed part of the Code of Justinian and can be found in the Louisiana Code. In England, however, since the reign of England's Edward I (1307 to 1327 A.D.) the title to treasure was held to be in the Crown (in the government). In England, in most European countries and in Mexico, this rule still holds. Laws in the United States have, since the beginnings of the country, been that the treasure finder has title to it. Ordinarily, the owner of the land acquires no title to

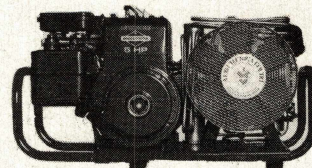
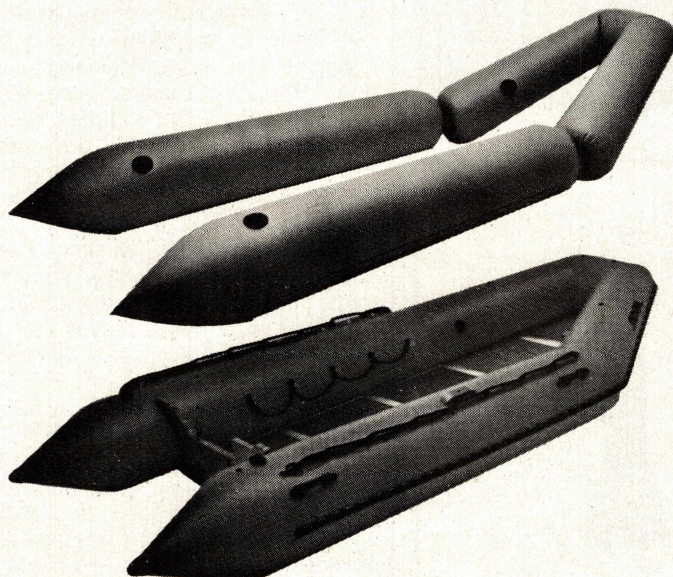
the treasure. The few adjudicated cases in the United States, from the earliest cases to the most recent decision by the Supreme Court in the case of Mel Fisher in Florida, have held that treasure trove goes to the finder. In all cases the finder got good title to the property against all the world except the true owner, who had to prove the treasure was his. It now seems the only way a state or a branch of the federal government can claim ownership of a treasure is for the federal government to pass a law that changes ownership of treasure trove. In recent years, even as late as 1983, laws have been introduced in the United States to change the legal ownership of treasure trove to the federal government.

Salvage laws are somewhat different than laws of treasure in that a vessel that becomes a wreck for some reason may,

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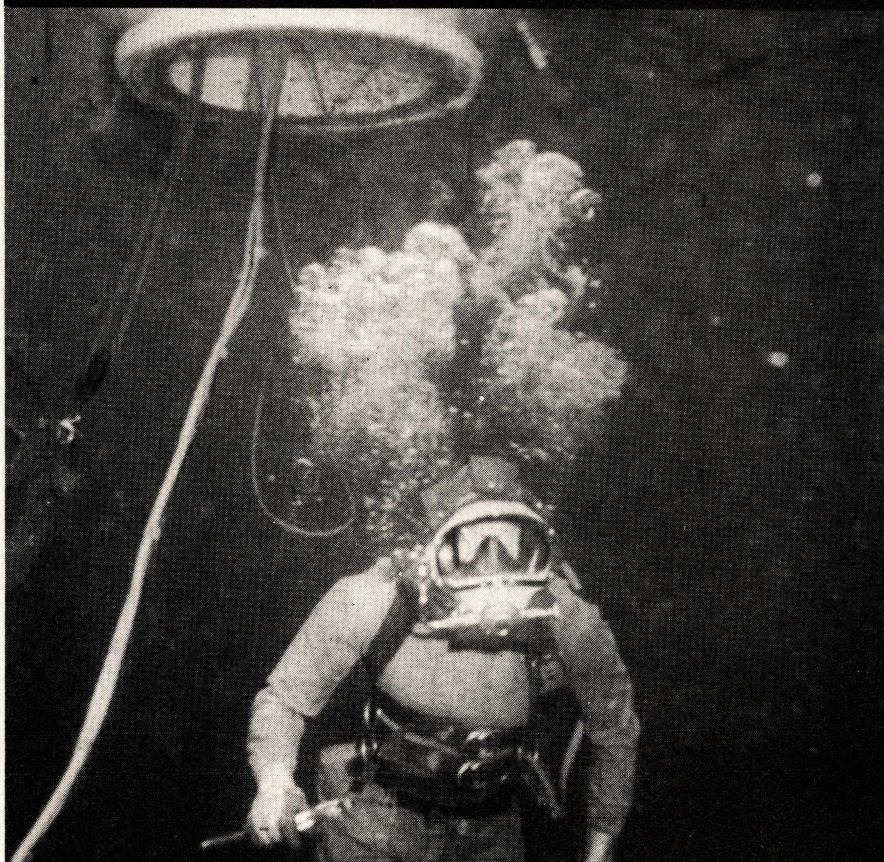
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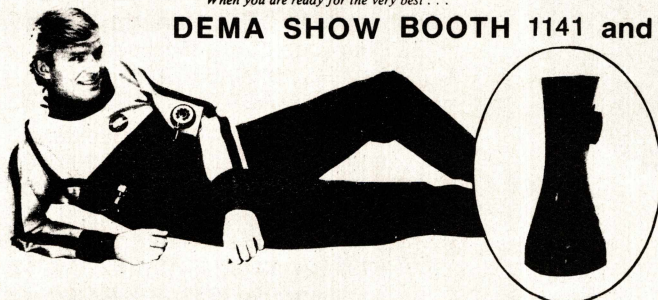


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## TECHNIFACTS

at the option of the owners or insurance underwriters, be abandoned to avoid further liability. When officially so abandoned they are the property of the United States (if in U.S. waters) and the government is then not only the owner but also, in most cases, liable for the wreck, including the cargo. Salvage law, which deals with known ownership (the original owner, the underwriter, or the government if the vessel is abandoned) is regulated by Admiralty Courts and all salvaged goods and the vessel, if salvaged, are placed in the custody of the Admiralty until ownership is determined and an award decided upon for the salvor.

The amount of award to the salvor depends on many complex things; the hazards encountered in making the salvage, cost and many other factors including, not so strangely, the years of experience the salvor has in his business. The reason for this last is that Admiralty Courts recognize the importance of organized and trained salvors and award them a higher amount, to keep them interested in taking the risks involved in these efforts.

Obviously, laws concerning ownership of treasure and those of salvage fail in one important area. That is in the protection of a site, be it an ancient vessel, a sunken city or a cargo resting on the ocean bottom that is of historical importance and that can be worked and studied by marine archaeologists. There are thousands of shipwrecks strewn over the ocean bottom in American waters. Certainly some of them are of historical importance. A few are in a state of preservation and are accessible enough to permit study to determine their part in American history. One disciplined marine investigator has said that the real job of the 60 or so full time professional archaeologists in the country is the scientific, historic reconstruction of wrecks and their cargoes. While most are so scattered that this is probably impossible, there are wrecks and cargoes that are both salvageable and of historical importance. It is these that should be protected for disciplined study.

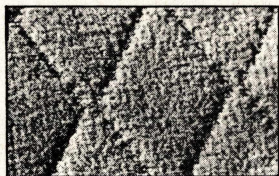
When Technifacts first started writing about the search for and recovery of historical objects the response indicated there was extensive activity in this phase of sport diving. A great deal of the correspondence concerned whether or not sport divers should engage in historical diving. And, if they did, what their obligations to others were regarding their finds. One Technifacts reader seemed to summarize some of the feelings of the anti-diver/collector. He also has some suggestions for restoring silver objects. The reader wrote, "Although I strongly disagree with the idea of treasure hunting



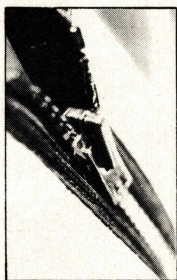
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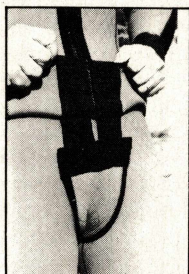
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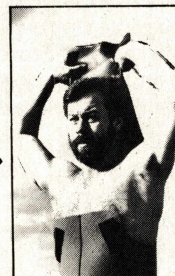
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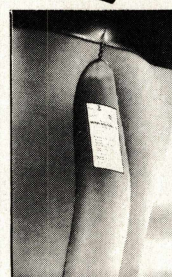
Delrin zip with  
corrosion free  
**NICKLE SILVER**  
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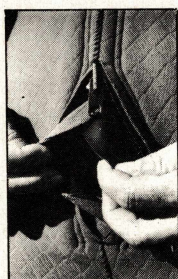
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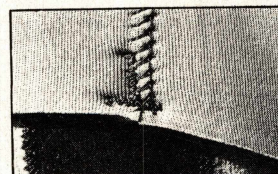
Double sealed fly  
zip optional extra



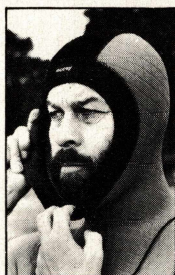
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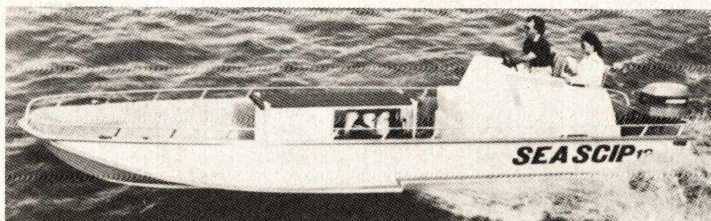
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## TECHNIFACTS

merely as a recreational sport, I do feel an obligation to keep historical artifacts from being destroyed. The thought of using a tumbler with grit as a method of removing oxides of silver sends shock waves through my mind. Using such an abrasive method will only wear away more of the coin's surface. There are several methods that will actually return some of the oxide to its original metallic state. One of these is electrolysis and the other is using commercially available chemicals.

Technifacts agrees that certain kinds of underwater sites should not be disturbed by random diving expeditions. In spite of the vast difference in their ultimate goal, the sport diver and the marine archaeologist have one thing in common: They are both searching for things out of the past. The sport diver should be aware of this and realize that every object found underwater is potentially of historical importance. A few may well be archaeological treasures. Random objects found by divers, such as old bottles, coins, cannon balls and many, many other items, all of which have been lost without reference to any other historical thing or without reference to anything that could even loosely be called a site, should be recovered by divers. But, all of these objects should be studied to the extent that their location and relationship to everything else in the area can be recorded for future use and comparison. Good data on finds adds not only to the interest but to the value.

There are hundreds of times more vessels on the bottom of the oceans, lakes and rivers of the world than are afloat on the surface of those waters. An estimated four-fifths of all gold and silver minted has been lost. Much of history has been lost along with it. But all the archaeologists in the world will never find even a small fraction of these lost items. Even if sport and commercial divers were to report all of their finds, archaeologists could find time to develop the historical significance of only a small fraction of the finds. Reconstruction of sites on land is slow and expensive but similar underwater sites are many times slower and many times more expensive.

Based on records of sites worked to date, it seems the only way that lost history can be recovered or studied is through a joint effort of commercial and sport divers, private investors and with a mix of state and federal funding, worked under the guidance of marine scientists.

Some progress has been made toward this in England, Florida and particularly in Australia. In the state of Victoria, Australia, The Commonwealth Historic Shipwrecks Act 1976 was proclaimed in

(Continued on Page 64)

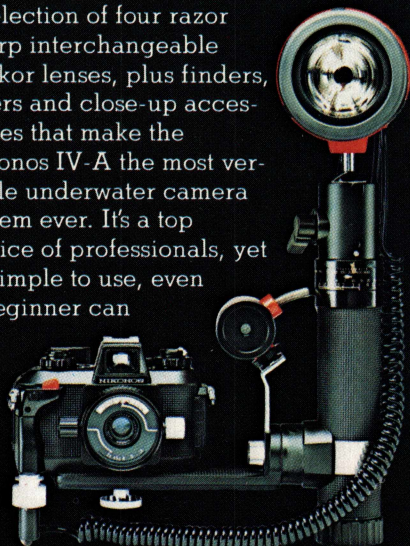


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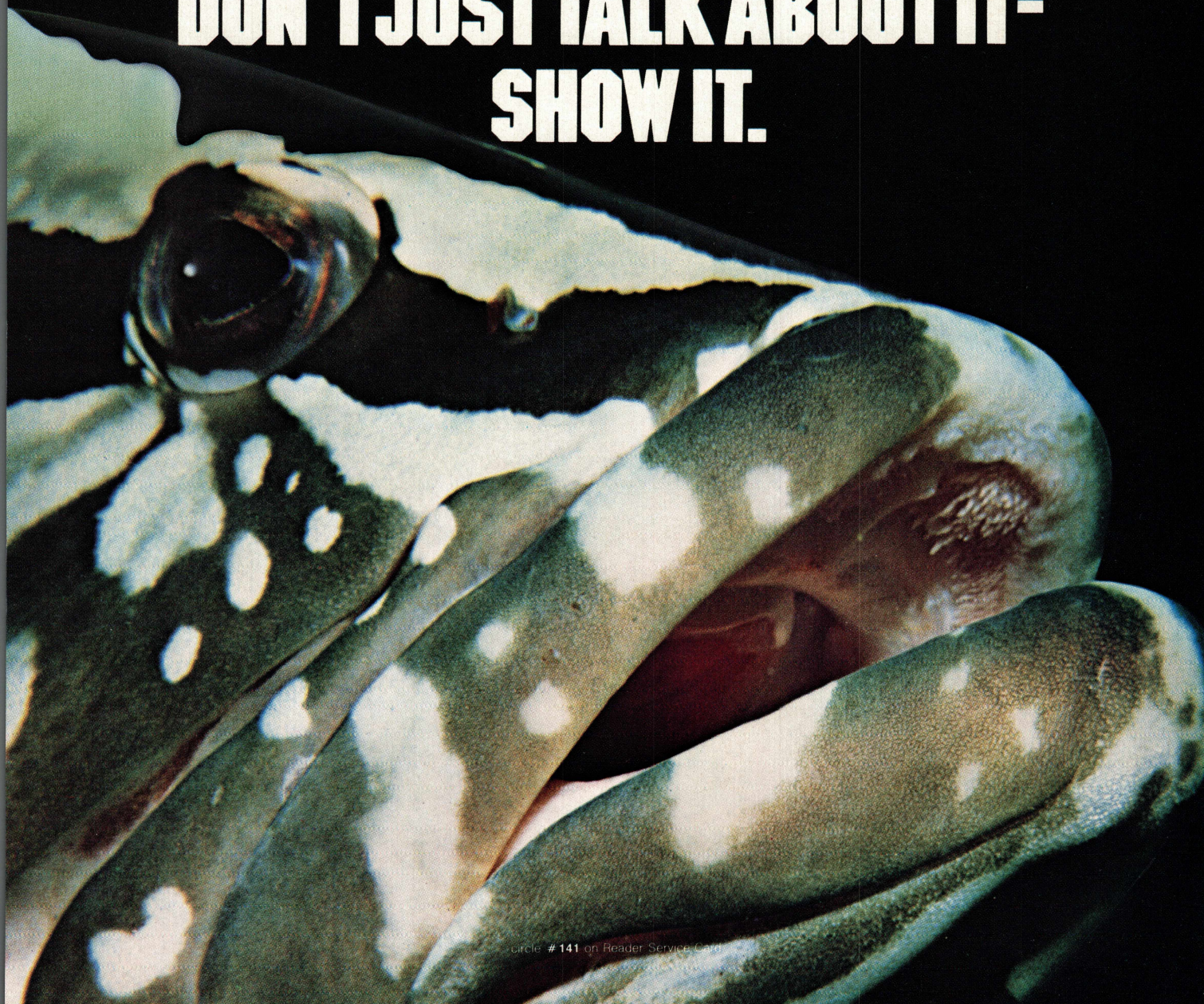


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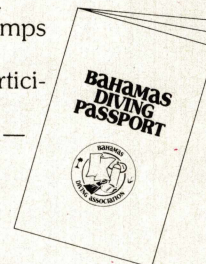
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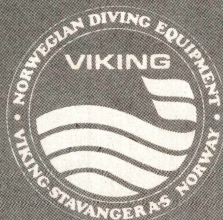


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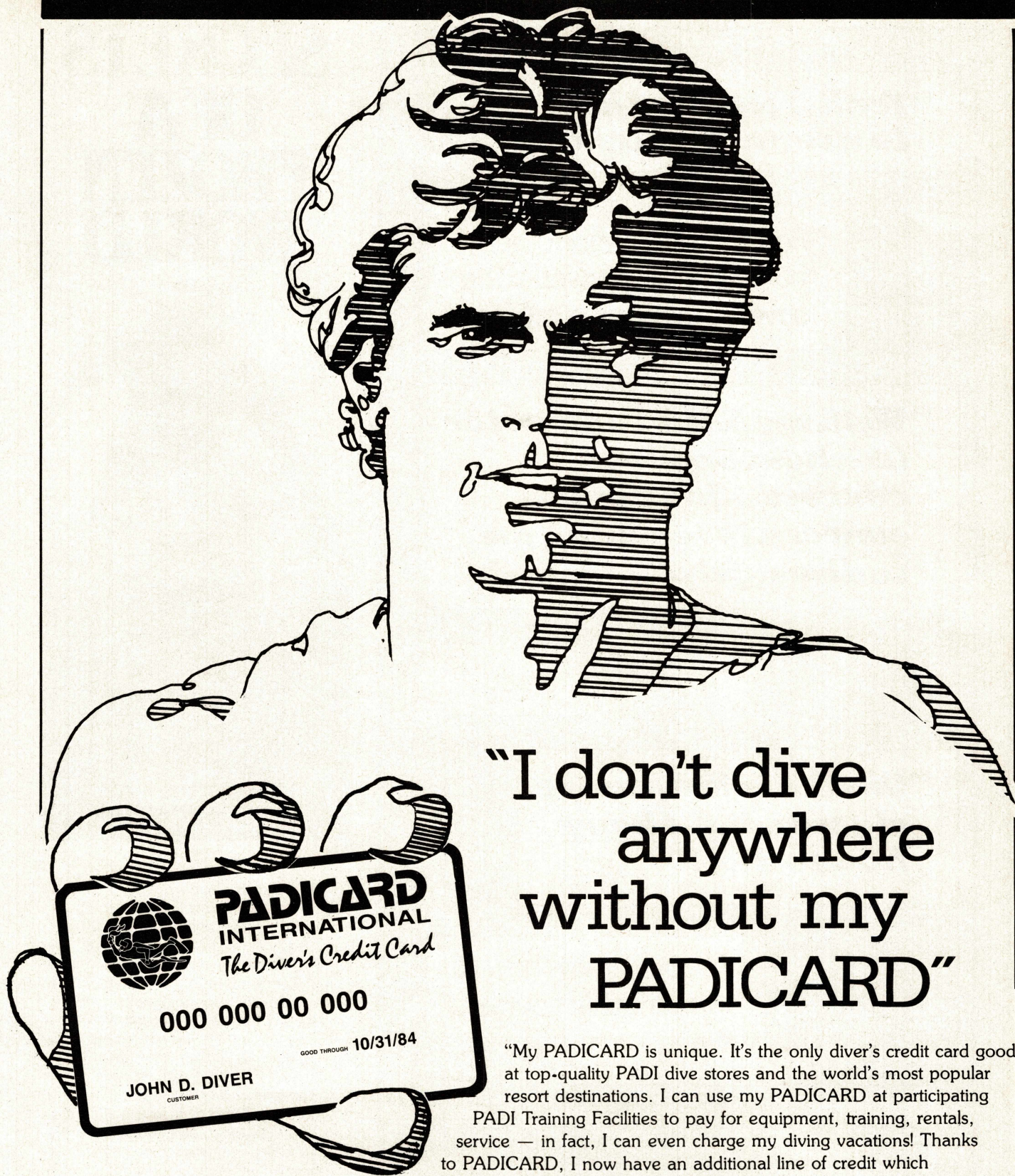
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# SECRETS OF A FROZEN WORLD



TEXT AND PHOTOGRAPHY  
BY DAVID C. HAAS

**W**e Midwest divers sometimes envy the coastal dweller for having access to, if not reasonable weather, a constant source of diving possibilities. We have to be satisfied with quarries, murky lakes and for some of us, wrecks on the Great Lakes. Unfortunately, we cannot access all of these year-round. When the snow blows and the ice covers our regular haunts, the luckier ones plan a trip south, ski, or just dream of next year's trip. Those of us who just have to stay wet all year spend approximately half the dollars of a Caribbean dive trip to keep diving (i.e. a drysuit!) and thus enjoy a different dive experience—ice diving.

Ice diving can produce some conditions completely opposite of those found in summer. With no wind and waves and water warm enough for algae to grow, visibility increases sometimes to an incredible 50-100 feet! We have found the deeper quarries (50 to 80 feet) to be clearer after being frozen for a couple of months. If there has not been much snow and the light can come through the ice, the view is breathtaking. Exhaust bubbles



collect under the ice like pools of mercury. There is an eerie stillness as you descend. The most fitting description is isolation; similar to what one must feel at remote places such as the North Pole.

Secrets hidden by the frozen surface and nature's own cycle of survival are both present on an ice dive. We find fish hibernating, their body processes slowed to a dormant state. It is almost as if you are privileged to see a world waiting to be unlocked when the ice melts and another season comes into bloom.


All too soon your frozen adventure must end. You kick slowly toward the hole, lingering for a few minutes. You know the tenders and safety divers, not having moved around much for 30-45



minutes, are probably anxious to head for the warm vehicles. You surface through the looking glass and leave the chilling world below.

Ice diving can be a safe, rewarding experience if learned correctly and practiced to the letter. Moderate to advanced open water experience (preferably cold water experience if you are going to dive in a wetsuit) followed by instructions from

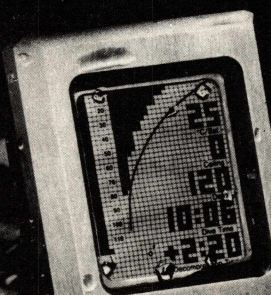


an ice diving instructor or experienced club, will ensure that your mid-winter experience is an enjoyable one. When the wind howls and the bank account is tapped out, we Midwesterners don't sit and dream. We still go diving and examine another facet of the underwater world! 

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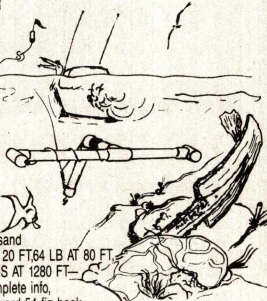
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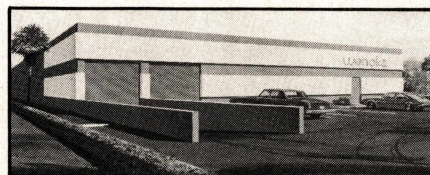
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Beach at the end of 1980 we decided to keep the executive offices in Massachusetts until we felt the new plant was functioning smoothly. Now we are certain that the consolidation of our offices will not only make business easier for us, it will make it easier for all of our dealers."

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## HILLBILLY DIVERS

The Hillbilly Divers Association of West Virginia will host Splash II '84 on Saturday, March 31. This is a pool party for divers and non-divers. Games and contests will be held and prizes awarded. For further information contact Bill McCormick at (304) 768-1495.

## THE DIVE SHOP

The Dive Shop, Inc. in St. Louis, Missouri, recently remodeled and expanded its store. The new store front has moved one door west to 9836 Manchester Road. The entire showroom has been upgraded using modular design techniques. The Dive Shop also has expanded the repair facility to include its own on-site hydrostatic test station.

## RESCUE DIVER MANUAL

The *PADI Rescue Diver Manual*, a complete guide to diving emergency procedures, is now available. In addition to in-depth sections on prevention, first aid, accident management, equipment, rescues and assists, the manual contains over 200 useful photos and illustrations.

Included with the manual is the PADI Diving Accident Management Workslate. Designed to be filled out and sent with the victim of a diving accident, the workslate provides information for the rescue diver and emergency medical personnel.

The *PADI Rescue Diver Manual* is available at PADI Training Facilities.



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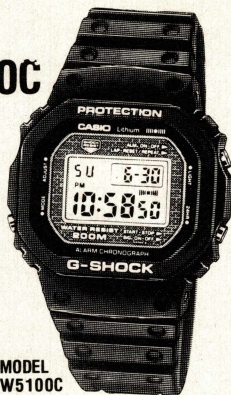
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## UNDERSEA MEDICAL BOOK

Edited by Jefferson C. Davis, M.D., *Hyperbaric and Undersea Medicine* is a publication prepared by 27 authorities in the field of undersea medicine and safety. It is designed to offer physicians a complete self-study course on all aspects of diving medicine with strong clinical emphasis. It will also provide a source of information for diving instructors and scientists to update lectures and reference materials.

Subjects covered in the 300 page book include: emergency care of diving casualties, psychological factors in diving, hazardous marine life and fish poisoning, hyperbaric chamber safety and many others.

The book is available from Best Publishing Co., P.O. Box 1978, San Pedro, CA 90732.

## DOUG MCNEESE

The Mid-South recently lost one of its most beloved dive shop owners and instructors with the death of Doug McNeese, Sr. of Memphis, TN. Doug was known throughout the area as a leader in the diving profession and a promoter of safe scuba.

## YORKTOWN EXCAVATION

If you're a certified diver, you can learn about colonial shipbuilding by helping marine archaeologist John D. Broadwater in the excavation of the remains of an 18th century British merchant vessel sunk in Yorktown Harbor near colonial Williamsburg, Virginia. The project, sponsored by the Virginia Historic Landmarks Commission, is seeking paying volunteers through the nonprofit organization, Earthwatch, which recruits amateurs to help on research expeditions worldwide.

Four teams of divers are needed to help on the Yorktown project this summer. The dates are: June 17-30, July 3-16, July 19-August 1 and August 4-17. A tax deductible contribution of \$895 covers all costs for food and lodging in dorms at the College of William and Mary, adjacent to Williamsburg.

For information contact Yorktown Shipwreck, c/o Earthwatch, 10 Juniper Rd., Box 127 N, Belmont, MA 02178.

## WEBFOOTED WARRIORS

The Webfooted Warriors Association, a fraternal association of present and former U.S. Navy Underwater Demolition Team (UDT) and SEAL team members, is accepting applications for membership. Active memberships are limited to UDT/SEAL personnel, but associate memberships are offered to all interested persons. Details are available from the association at Suite 1016, 8033 Sunset Blvd., West Hollywood, CA 90046. Please include a stamped, self-addressed envelope with 37¢ postage affixed, or send 40¢ in stamps to cover postage.

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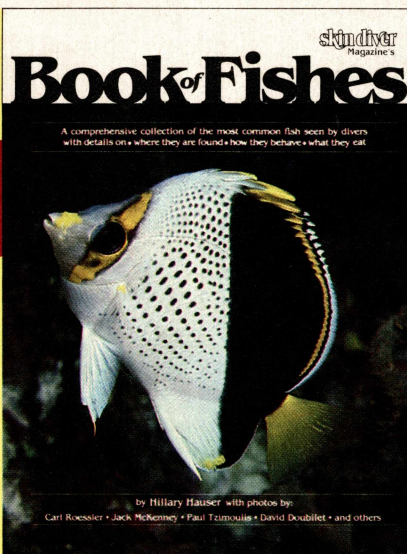
For more than ten years the most popular column in *Skin Diver* magazine has been its beautifully illustrated and highly informative Fish of the Month Series. Now the best photographs from that exciting series have been brought together under one cover in *Skin Diver* magazine's *Book of Fishes*. With the exquisite photos is a newly revised and updated text by the author of the original column, Hillary Hauser.

The text, based on the most recent scientific research, tells how the different fishes behave, where they are found, what they eat, and more intimate details about their life cycles. Organized so that all the fish of a particular family are grouped together, the book becomes an excellent identification guide illustrated with photographs that are among the best ever taken of marine life in their natural habitat.

**The photographs**

The world's leading underwater photographers have been contributing to the Fish of the Month column. Carl Roessler, Paul Tzimoulis, Jack McKenney, David Doubilet, and Chris Newbert are some of the important photographers whose pictures are included.

Technical details on how the pictures were made accompany the photographs. The film, equipment and exposure used are all given.



For amateur underwater photographers this information alone is worth the price of the book because it is in effect the logged notes of the leading professionals.

**The drawings and maps**

Detailed drawings accompany each of the photographs. These show juvenile stages and alternate forms which are sometimes strikingly different. These drawings, plus maps to show the areas in which the various fish are found, make the *Book of Fishes* one of the most useful and informative books for divers recently published.

**Three books in one:**

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**TECHNIFACTS**

(Continued from Page 54)

March 1982. A parallel state legislation, The Historic Shipwreck Act 1981 was also proclaimed for internal (inland) waters. Both acts are administered through the Victoria Archaeological Survey, which is part of the Ministry for Conservation. The Victoria Archaeological Survey has, in turn, established the Maritime Archaeological Unit with an initial staff of two professional maritime archaeologists. The unit's responsibilities include:

1.) To collaborate with organizations and individuals concerned about the maritime heritage or wishing to participate in maritime archaeological fieldwork and research.

2.) To conduct a wreck inspection program, to assess the importance of known wrecks and proposals made for protection under the Acts.

3.) To coordinate the surveillance of sites declared historic shipwrecks to ensure that protection is effective.

4.) To conduct scientific investigation of sites that will add to knowledge about our maritime past.

5.) To present the results of the unit's work through displays, media coverage and publications.

6.) To develop shipwrecks as recreational resources for divers and the public.

7.) To conduct an educational program with divers and the public, directed toward increasing an awareness of, and support of, the protection and investigation of our maritime heritage.

It seems forming an organization such as this is a giant step toward solving the potential hostility between the sport and commercial divers and the marine scientist. On a worldwide basis two million or so sport divers could join the 200 or so marine archaeologists in finding, inspecting, surveying and policing hundreds of sites not now known. These will never be known if only a very few archaeologists are allowed to spend ten or so years on each site before getting onto the next. Also, such an organization will help develop the tremendous amount of financial backing such projects take and, perhaps most important, will help develop an educational program in all areas that will lead to greater involvement and support by both the diver and the public in the location, investigation, recovery and protection of maritime history.

Next month Technifacts will discuss some of the work and results of Victoria's Maritime Archaeological Unit and also comparable units developing in England and the United States. Technifacts would like to hear from readers about their thoughts on developing organizations to promote cooperation between scientists and divers.



# The Baja Bandito



**When it's Big Game—  
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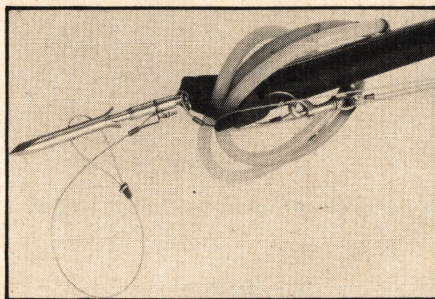
## TEXT AND PHOTOGRAPHY BY FRED FISCHER

In most populated areas very large fish such as the grouper and black sea bass are rare and spearing them is definitely frowned upon. In areas where large game fish still abound, the temptation to take one can be strong—but, should be indulged only with the proper equipment. The 62 inch Baja Bandito from Aquacraft (catalogue No. G-20) is designed for this task. Heavy duty features include three amber rubber slings, large size tricut detachable point,  $\frac{3}{8}$  inch shaft and a 420 pound test stainless steel cable.

Construction of the Baja is similar in many ways to the others in Aquacraft's Bandito speargun collection. The muzzle and grip are made from Capron, a type of nylon which is extremely rugged. They are separated by a one and one-quarter inch diameter, black anodized, hollow aluminum tube, plugged at each end for buoyancy. The 42 inch stainless steel shaft is threaded for six millimeter tips. Each of the three 21 inch slings has one-half inch diameter amber tubing with a stainless steel spring wire wishbone. When stretched, the slings are aligned parallel to the shaft by channels in the muzzle for maximum accuracy. The Bandito grip has deeply sculptured finger contours for a good hold by either right or left handers. The safety is directly behind the trigger and engaged by pushing a button from side to side through the handle. Unfortunately, it makes a popping sound as it snaps into position. The line release is on the bottom of the handle. This keeps the line away from the barrel and more vulnerable for tangling in kelp.

The rear stock is somewhat unusual.

The 12 inch long aluminum tube from which it is made is bent downward at its midpoint and, when using a two hand grip, allows the user to extend the arms out to get closer to the fish without the rear hand (on the end of the butt stock) getting into the line of sight. This feature also makes loading more comfortable. In conjunction with the grip it forms a hook which fits neatly around the hip and helps distribute the loading pressure. By bringing the slings closer to the body it helps those with a short reach to pull the slings down the long barrel.



Special rigging makes the Baja Bandito the only stock gun made for taking large fish in a rocky environment. The three slings, large mass shaft and streamlined tip give it the necessary penetrating power. The slip tip is attached to the shaft by a 17 inch stainless steel cable to give holding power for fish with extra girth. The standard nylon shock cord has been replaced by the same 420 pound test steel cable which holds the

tip. For quick release the cable is attached to the muzzle by a solid brass snap clip. The steel cable has high tensile strength and resists cutting on sharp rocks. In addition to these special features the spearfisherman may want to pick up a spring steel shaft.

The Aquacraft Baja Bandito comes with an impressive lifetime warranty on the grip and muzzle. Other components carry the usual one year warranty against manufacturing defects. Routine maintenance for the Baja should include rinsing it in fresh water after use and storing the



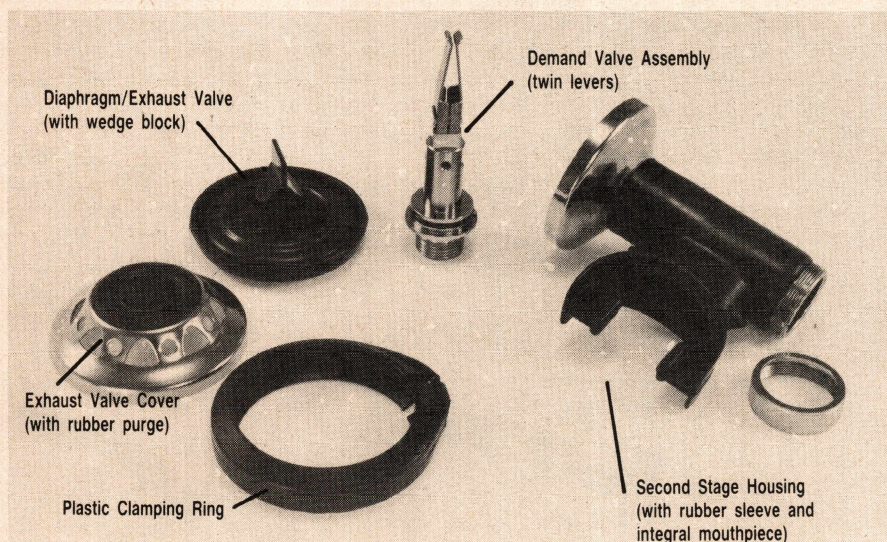
slings in a plastic bag for protection from ozone. Also, one should check for and remove any saltwater which has leaked into the barrel before extended storage.

Spearfishermen who are fortunate enough to dive where large fish abound should definitely take a look at the Baja Bandito and the extensive range of accessories available from Aquacraft dealers around the world. The price for this gun is also right, \$145.



**SDM SPECIAL SERIES ON REGULATORS**

**BARAKUDA  
BARAMAT 2002**



The 2002 second stage has a twin lever demand valve and dual function diaphragm.

**TEXT AND PHOTOGRAPHY BY GEORGE COZENS**

One of the recent arrivals to the United States is the regulator featured this month: the Baramat 2002, made by Barakuda Bergann KG, of Hamburg, West Germany and distributed by P & P International of Prospect, Kentucky.

The first stage is reasonably heavy and quite compact. It resembles a typical diaphragm type first stage, fitted with a rubber environmental cap. But don't let the

appearance fool you. The basic design of the stage is actually that of a balanced, flow-through piston. The cap is not primarily for environmental protection (although it does that, too), but a diaphragm which senses ambient pressure. In the Baramat 2000 the people at Barakuda have combined the better features of both the piston and diaphragm designs.

To understand their approach, let's

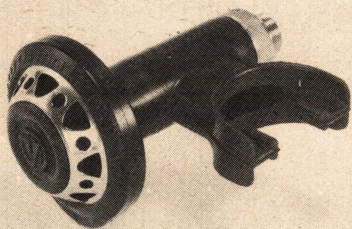
take a look at a typical flow-through piston design. The first stage contains three separate areas: a high pressure cavity, filled with air directly from the scuba tank; an intermediate pressure cavity, which supplies air to the second stage; and an ambient pressure cavity, which monitors the pressure of the environment surrounding the first stage. Central to the balanced piston design is, of course, the piston: essentially a hollow tube with a broad flange at one end, the side view of which looks something like a T. The small end, or stem, of the piston passes through the center of the high pressure cavity and presses against the HP seat, sealing off the flow of air. The flange end of the piston, with its O-ring seal, forms a sliding barrier between the intermediate and ambient pressure cavities. Intermediate pressure (IP) air pushes on the top side of the flange, tending to keep the small end of the piston sealed at the seat, while ambient pressure and an adjustable spring press against the underside of the flange, in an effort to move the piston back away from the seat. When ambient pressure increases, or the intermediate pressure decreases, the imbalance pushes the piston back, allowing HP air



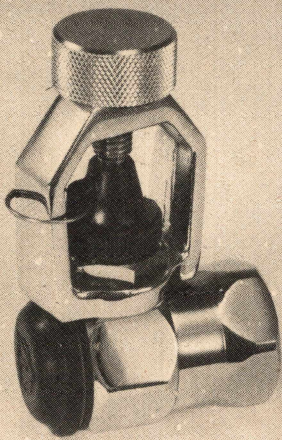
to flow through the hollow stem of the piston and into the IP cavity. Once the intermediate pressure has increased sufficiently, it can exert enough force to push the piston closed.

Two potential problems exist with this design. Since water is allowed to enter the ambient cavity, any salts, silt, sand or other contaminants are also allowed entry. In time, these can cause wear on the O-rings and precision metal surfaces. Also, when diving in cold water, the chilling effect of air passing through the first stage can freeze the water in the ambient cavity. Either problem can result in a first stage malfunction.

Barakuda sealed off the ambient pressure cavity from any water entry—except



**Sleeve/mouthpiece of the second stage.**



**First stage has chrome plated brass body.**

for the spring, the cavity is empty. In the Baramat 2002, ambient pressure is transmitted via three steel pins. These press on the underside of the piston flange at one end (inside the ambient cavity) and extend through the wall of the first stage body to the outside, where the other ends contact a steel disk bonded to the backside of the rubber end cap. Hence, a rubber diaphragm feels the ambient pressure and by pressing on the pins, controls the movement of the piston.

First stage materials include: chrome

plated brass in the body, yoke and yoke knob; stainless steel in the piston, pins, and diaphragm disk; neoprene in the diaphragm/cover; and Teflon in the reversible high pressure valve seat. Several features of this stage are worth mentioning. Intermediate pressure air is set at 90 psi, which is lower than that required by most typical second stages—if an octopus second stage is added, make certain it will function properly at this lower pressure. The first stage was designed primarily for European distribution, where the DIN fitting is the standard cylinder connection. The swivel yoke, shown in this article, is, however, readily available. The stage provides one high and three low pressure ports. This HP port points downward when the second stage hose is positioned over the left shoulder, as is sometimes done in Europe. Placing this hose on the right side, as we do in this country, positions the HP port in an upward direction, aimed at the back of the head—not a very good place for the pressure gauge hose. A few solutions are possible: (1) use the regulator as it was intended, in the European orientation; (2) rotate the first stage on the tank valve so that the second stage hose is pointed downward on the right side, in which case the HP port will be directed almost horizontally to the right; or (3), use a 90 degree elbow or adapter (of the proper pressure rating) to position the second stage hose or the pressure gauge hose more conveniently.

The second stage is essentially a conventional, downstream demand valve design, made of classic materials. Barakuda has used an unusual method of coupling the second stage diaphragm to the demand lever. In more typical arrangements a single demand lever is hinged at a point near one end, in such a manner that movements in the long end of the lever cause the short end to open and close the spring loaded demand valve. In the Baramat 2002 second stage, two demand levers are mounted back to back on the same downstream demand valve. A wedge shaped block, attached to the rear of the diaphragm, rests between the outer ends of the two levers. During inhalation or purging, the diaphragm moves inward and the wedge pushes the ends of the levers apart. In so doing, the twin levers open the demand valve, allowing air to enter the second stage.

Another interesting feature of the second stage is the dual function diaphragm/exhaust valve. The center is shaped like a spoked wheel, with openings between the spokes. The center is surrounded by a thin, flexible, convoluted ring, with a thick outside edge (for clamping in place). The entire wheel is made of silicone rubber. Covering the open center is the silicone rubber ex-


haust, looking much like a hub cap. This configuration gives the diaphragm an effective diameter of about two and one-quarter inches and the exhaust valve about a one inch diameter opening.

The second stage case, diaphragm cover and demand valve body are chrome plated brass; the purge button and mouthpiece are neoprene rubber; the wedge and clamping ring are plastic. The mouthpiece is large, but comfortable and an integral part of the molded sleeve which wraps around the central section of the case. Because the rubber in the bite tabs is relatively hard, biting them off would be difficult—but if you should, the entire mouthpiece and sleeve would have to be replaced as a unit. The purge is reasonably large (about one inch in diameter) and easily accessible at the end of the second stage.

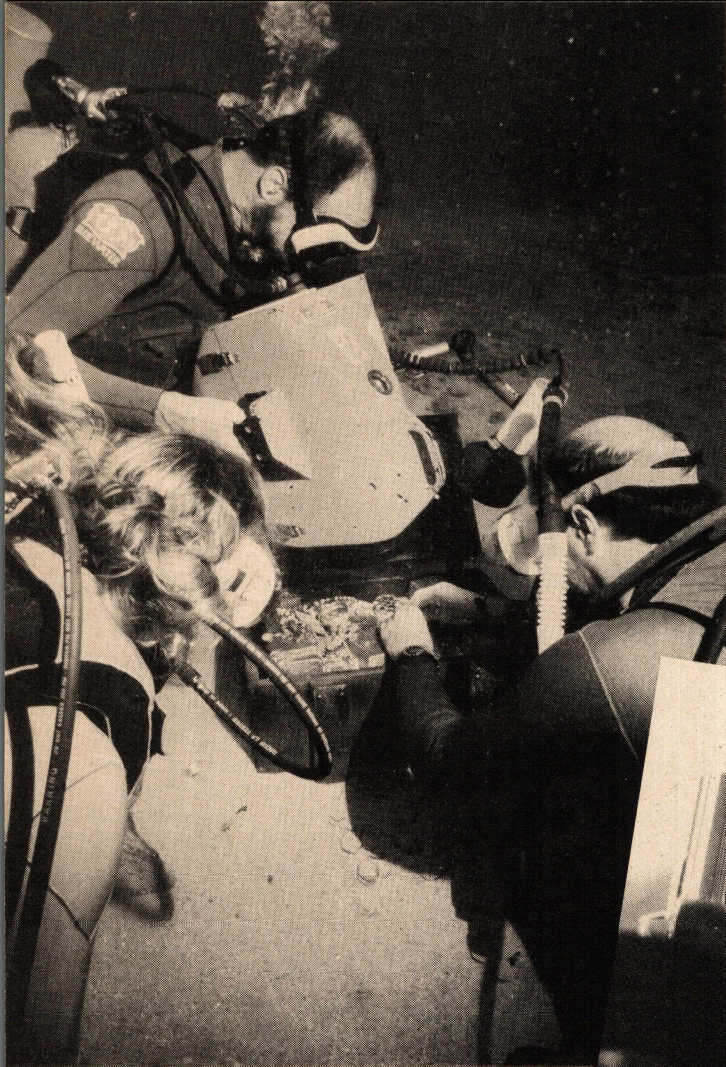
Routine maintenance for the Baramat 2002 is about the same as for any regulator: rinse in fresh water after use and dry out of direct sunlight. Professional servicing is recommended at yearly intervals. Because this regulator is so new in this country, no information is yet available for the typical costs of labor and replacement parts. In fact, the dealer network is just now being put into place.

My evaluation dives went without a hitch. The Baramat 2002 performed without a single problem or surprise. Free-flowing was not a concern—in fact, it was practically nonexistent. With the case full of air and the mouthpiece turned up, the bubbling stopped almost immediately. Even after depressing the purge button while the mouthpiece was pointed upward, freeflowing stopped within a couple of seconds. At depths ranging from 15 to 100 feet and in the various contorted positions I usually try, the unit performed with the relative breathing characteristics I would expect of a single hose regulator. Exhalation resistances were about the same as my comparison regulator, but inhalation resistances seemed a little higher for the Barakuda unit. Finer tuning should improve this behavior. No water leakage was noticed in any of the orientations tried. Some exhaust bubbles were observed on the left side of my field of view, but these disappeared when I tilted my head down 20 degrees or more from the horizontal.

The Barakuda Baramat 2002 appears to be well made and should be easy to use and maintain. The environmental protection provided as a result of the first stage design should make it well suited for diving in cold or dirty water. With a suggested retail price of \$300, this is one regulator you just might want to test dive.

For dealer information contact: P & P International, 2110 Cardinal Harbour Road, Prospect, Kentucky 40059. 





photo/Jim Cooluris

***Treasure Diving* follows a team of treasure hunters from a mountain stream in Northern California, to a wreck off the coast of Southern California, to another wreck off the Cayman Islands. The fictional characters and events in this production create a light-hearted spoof intended to promote sport diving.**

One of the most successful and widely viewed diving films was produced last year for the Diving Equipment Manufacturers Association by Jack and Sari McKenney. In 1983, *I'd Rather be Diving* was viewed by over 2,000,000 people, 90 percent of whom were non-divers. And, DEMA statistics show that more than 4000 divers took up the sport last year as a direct result of seeing the film.

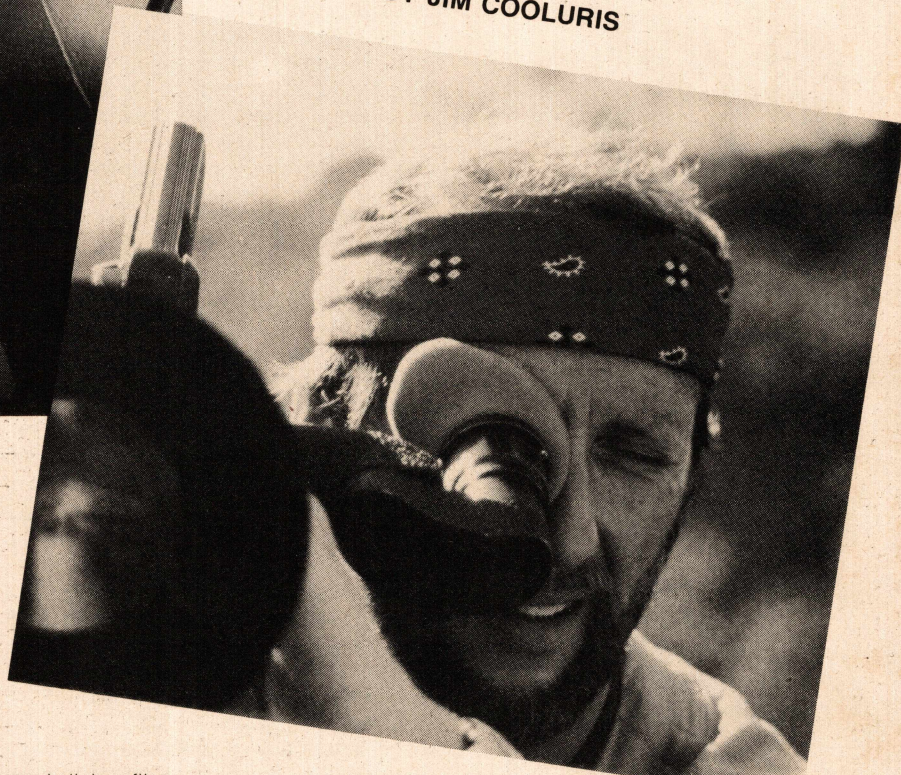
*I'd Rather be Diving* stars actor/comedian Thom Sharp as Bob Wilson, a harried executive working his way into an ulcer. The film takes our hero through diving lessons, open water dives in the kelp beds off Southern California and onto Hawaii for a fabulous diving holiday. As the film unfolds we realize that diving has given Bob a new lease on life. It offers him excitement, travel and adventure and is socially rewarding.

Thom Sharp's appeal as the nice-guy-next-door is rapidly thrusting him into the forefront of his profession. He has appeared numerous times on most of the television talk shows including Merv Griffin, Johnny Carson and Dave Letterman. And barely a week goes by but what he appears in one or two television commercials.

# TREASURE DIVING

NEW DEMA  
PROMOTIONAL  
FILM

BY JIM COOLURIS



photo/Kim Olsen

Jack and Sari discovered Thom at the Comedy Store in Los Angeles and immediately knew that he was perfect for the part of Bob Wilson. Then a non-diver, Thom was certified by NAUI instructor Mike Nomad and has become a competent and enthusiastic diver.

DEMA is distributing the film free-of-charge through Modern Talking Pictures to schools, universities, colleges, social organizations, pay, free and cable TV networks and as a short in theaters.

Owing to the tremendous success of *I'd Rather be Diving*, the DEMA board elected to have the McKenneys produce a sequel called *Treasure Diving*. Ralph Osterhout, the articulate and energetic president of Tekna is a driving force behind these films. A DEMA board member, Osterhout understands the importance of promoting diving to the public and is a strong advocate of the film medium.



Thom Sharp is again the featured star in the 14 minute production. Model/actress Melanie Vincz co-stars as Ms. Mimmons. Melanie recently starred in *Lost Empire* as sort of a female Clint Eastwood. She has appeared on numerous sitcoms, talk shows and has been a favorite on the recently introduced and highly successful *Thicke of the Night*. I played Bob Wilson's diving buddy and Bob Gray, general manager of DEMA, once again plays Bob's boss, Lucian Stogbauer.

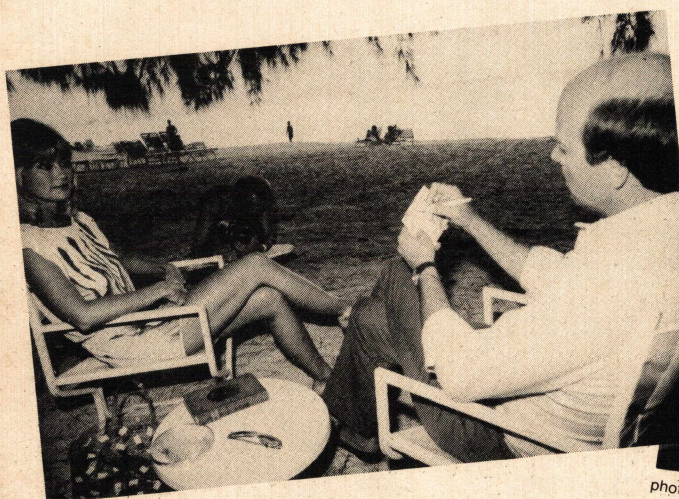
Jack McKenney, world renowned underwater photographer and cinematographer, was the producer. Jack takes part in many major underwater film festivals throughout the world each year. He and Sari recently co-produced 13 half hour television shows for worldwide syndication. And Jack's new book, *Dive To Adventure*, has been meeting with tremendous acceptance throughout the diving industry.

Earl Weingarden and Dave Lewis, writer friends of Thom Sharp, plotted the framework for *Treasure Diving* with a lot of input from Thom, Ralph and Jack. The film opens in the northern Sierra Nevada mountains. Bob Wilson and his diving buddy Jim are dredging for gold in a clear mountain stream. We had driven north from Los Angeles and Oxnard and rendezvoused with Ralph at the Kenton Mine about an hour and a half

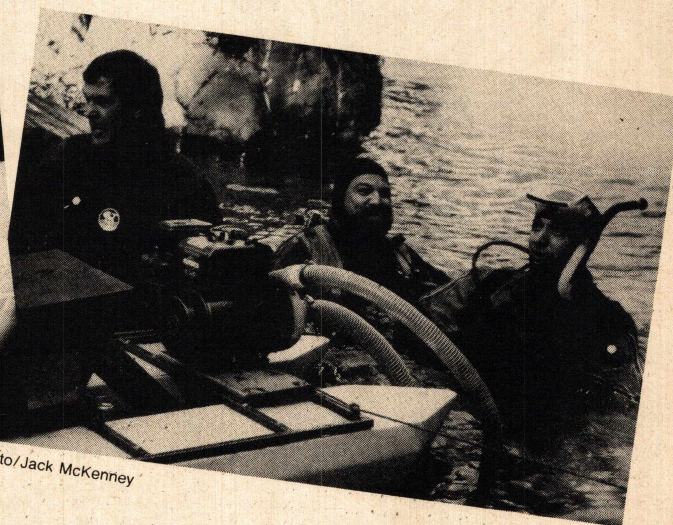
ing destination in the Caribbean. Thom, Melanie, Ralph, Jack and Sari, Dan and Bill Cress and myself spent ten days working on the magnificent drop-offs and the wreck of the *Oro Verde*. Realizing the potential of this film, the Cayman Islands Ministry of Tourism, the Holiday Inn and Ron Kipp's Bob Soto's Diving rolled out the red carpet and provided our crew with tremendous support. Continental flew us from Los Angeles to Houston and Cayman Airways took us to Cayman.

Ron Kipp, under the direction of expert diving guide Steve Krammer, put the *Paradise Diver* at our disposal. The long boat was a perfect support vessel. Jack and Sari don't travel light. They brought 25 separate boxes of equipment totaling about 1000 pounds. Jack shot and directed all of the sequences and Sari did the sound recording. Because of the limited budget, Ralph Osterhout and Dan Cress were pressed into service as bit actors. Their sequences are some of the most humorous.

Melanie was an enthusiastic professional from the beginning. She was seemingly unaffected by the cuts, scratches and bruises one invariably gets while lugging equipment, diving and acting in a project like this. Melanie helped put herself through school many years ago as an auto mechanic. It's hard to imagine this beautiful woman pulling a transmission.



photo/Jim Cooluris



photo/Jack McKenney

north of Downieville. For three days we labored in this beautiful northern part of California. As Bob Wilson's buddy, I'm the one who introduces gold diving. After we strike it rich, I accidentally overinflate my drysuit, float off down the river, and 14 minutes later in the film, rejoin Bob some 500 miles south, off the California coast.

In between there are a lot of laughs as Bob joins up with the initially prim and prissy Ms. Mimmons. A librarian, she just happens to have a PhD in lesser known Spanish explorers and Jewish pirates.

Bob inadvertently finds a very old map on the back of a collage of Elvis with a blue suede halo that he bought for his mom for her birthday. This turns out to be a treasure map that Ms. Mimmons identifies for him. The two team up and because of Ms. Mimmons expertise as a treasure hunting diver, they head south to look for the shipwreck *Sophie*, which belonged to Spain's first one-legged Jewish pirate, Juan Schmendel. During the course of this search, Ms. Mimmons is gradually transformed into a beautiful, voluptuous woman with whom Bob becomes enchanted. When they discover the wreck off Southern California, they find a treasure chest: But, it's full of left shoes, a collapsible peg leg and a receipt stating that the real treasure was shipped to the Cayman Islands via Miami Beach on the *Estelle*, sistership to the *Sophie*.

So, it's off to Grand Cayman Island, probably the finest diving

Thom's motto is "Dare to be Cautious." This was his first exposure to Caribbean reef diving and he couldn't get over its great beauty or the mesmerizing effect of diving a drop-off. But, it was the *Oro Verde* that really captured his imagination. This marvelous shipwreck is a 187 foot long freighter that was deliberately sunk by Bob Soto's as a diver attraction. For a film producer it's a Hollywood set come true. The ship lies on its starboard side in 50 feet of pristine water with the coral reef on one side and a white, sandy bottom on the other. The holds are open and allow easy access for swim-through scenes. The bridge and portside companionway also offer great angles for the underwater camera.

After a week of searching, Bob and Ms. Mimmons finally come upon a rusting hulk. How do they know that this is the *Estelle*? They strongly suspect it when they look up and see a school of gefilte fish swimming by. After a quick tour of the wreck they find the treasure chest out on the sand where it has been for the last few hundred years. It is full of gold bars, coins and jewelry. Lying nearby, just under the sand, are bottles of rare, vintage wine that was also shipped on the *Estelle* by Juan Schmendel. A sweep of a hand uncovers a great year for Mogen David Concord Wine.

The film comes full circle as we see Bob picking up Ms. Mimmons at the library. Although they are now filthy rich, the treas-

(Continued on Page 91)



# 184 SHOPPER'S GUIDE

The products listed in Shopper's Guide are those which the editors feel are of interest to readers. All specifications and claims are supplied by the manufacturers or sellers, who bear responsibility for their accuracy. It is impossible for SKIN DIVER to obtain samples of all products listed for evaluation and verification of manufacturer's claims. This listing is provided as a free service and vendors of U/W equipment are invited to submit information and black and white photos for consideration.



**1 Synthetic Drysuit**—The Nautilus package from Off-Shore Diving Equipment includes Dry Shell suit (synthetic fabric/polyurethane) with double knees, latex seals, White's inlet valves, LP hose, watertight zipper, undergarment, hood and suit bag. \$825. Combinations of red, royal blue, navy, black, yellow.

**LANGE'S REPETITIVE GROUP SPEED TABLES**

TO FIND BOTTOM TIME REMAINING (IN MINUTES) FOLLOW ARROW DOWN, IN THE COLUMN OF RESPECTIVE DIVE GROUP, TO THE ROW OF THE DEPTH DESIRED (IN FEET).

ROLAND LANGE 1982 ©

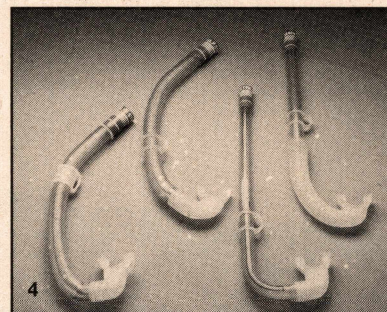
Depth in Feet ↓	Bottom Time Min. 1 <sup>st</sup> Dive ↓	A Group	B Group	C Group	D Group
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50	100	94	87	79	71
60	60	55	49	43	36
70	50	46	41	35	30
80	40	36	32	27	22
90	30	27	23	19	14
100	25	22	18	15	11
110	20	17	14	10	7
120	15	12	9	6	3
130	10	7	4	2	
140	10	8	5	3	

U.D.T. INC., P.O. BOX 1624  
NEDERLAND, TEX. 77627

**2 Instructor Size Tables**—Now in a 30 by 18 inch size, Lange's tables are perfect for lecture use. Tables come in: Repetitive Group Speed Tables/Sportdivers Decompression Tables or High Visibility Tables/Sportdivers Decompression Tables. Both, \$47.50. U.D.T. Inc., Box 1624 Nederland, TX 77627.



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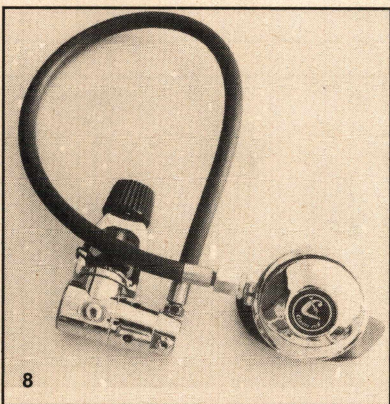
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**3 Flight Bag**—The Wenoka Flight Pac is perfect for carrying on board commercial airlines. 19 x 13 x 6 inch main compartment is padded on the sides and bottom, and has rubber studs at the corners. Large second compartment (15 x 11 x 3 inches) and a flat pocket. Polyurethane impregnated nylon. \$47.

**4 Silicone Snorkels**—New Slip Stream snorkel (\$20) features a slider which allows the snorkel to slip out of the way when not in use. C (\$18) and J (\$16) styles have large bores. F style (\$14) has small bore. All mouthpieces are hypoallergenic silicone rubber and are designed for comfort. Seaquest/Mares.

**5 Dive Fin**—The Adjustable Junior Fin has a size range from 4-8. One pair will fit most youths ages 8-12. The extended heel gives protection from sharp objects without limiting foot sizes accommodated. Adjustable heel strap with stainless buckles. Fins can be worn with or without booties. \$28. At Dacor dealers.

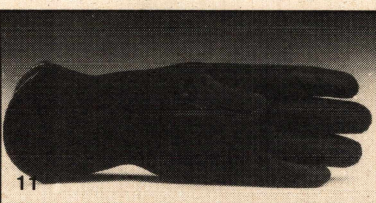
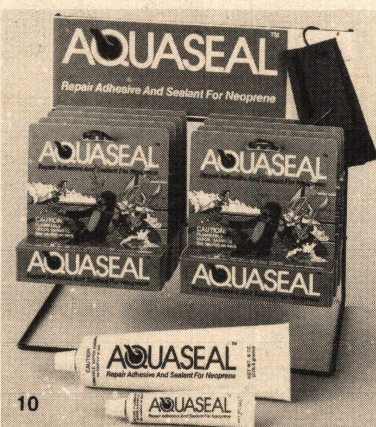




**6 Buckle**—The BSR buckle is made of tough, non-corrodible DuPont Delrin and polypropylene. Capable of holding approximately 200 pounds, the buckle uses a threading system which forces the web strap to lock upon itself. American Cord & Webbing Company, Incorporated, 505 Eighth Ave., New York, NY 10018.

**7 Jacket BC**—Contoured for comfort and security, Parkway's Ocean Jacket has an improved power inflator and built-in quick-dump valve. Side panels are adjustable and Velcro® fastened loops hold hoses in place. Jacket is 420 denier nylon for dependability. Color is blue with silver trim. \$287.30. Parkway dealers.

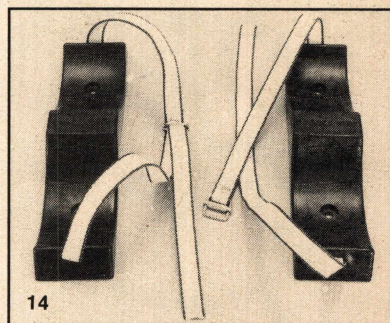
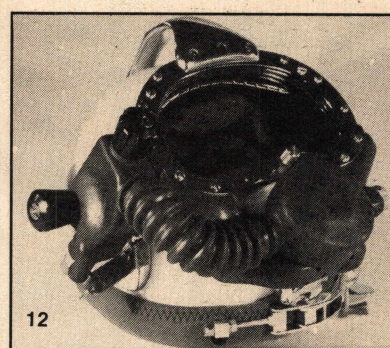
**8 Piston Regulator**—The Galaxie regulator from Cressi-sub features a balanced piston first stage with three swivel mounted low pressure ports. The polished chrome second stage is a high volume venturi design with recessed purge button and high flow exhaust port. \$280. Contact your nearby Cressi-sub dealer.



**9 Mask/Optical System**—The Prima silicone mask utilizes the Santiago optical system for correcting underwater vision. Lenses are interchangeable so the diver can select the correct power for each eye. Prima mask has hypoallergenic silicone rubber skirt. \$40 blue/clear. \$37 blue/black. From SeaQuest/Mares.

**10 Repair Adhesive**—Aquaseal repair adhesive and sealant for neoprene is a urethane rubber compound that gives flexible, waterproof repairs without patches or seam tape. It is available in a 1.5 oz tube with applicator tip (under \$5) or in an 8 oz. tube. From McNett Corp., P.O. Box 996, Bellingham, WA 98227.

**11 Dive Glove**—The Scubapro Gaunt-Lite glove utilizes a flexible 1/16 inch Lycra/nylon/neoprene combination for a good fit. Gauntlet opening slides easily over hand. Fingers are edge glued and the thumb is glued and sewn both on the inside seams and the palm joint. In five sizes, the glove is reversible. \$24.



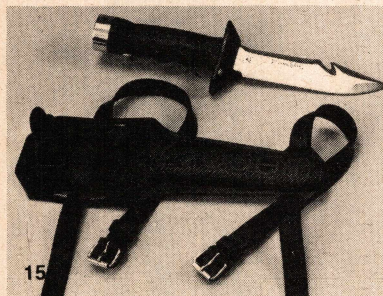
**12 Hot Water Shroud**—Hot water shroud, by Diving Systems International, fits all bandmasks and helmets currently produced by DSI. Protects the diver from heat loss by warming incoming breathing air. Designed to be used with any hot water diving system. \$86. DSI, 425 Garden St., Santa Barbara, CA 93101.

**13 Professional Drysuit**—Parkway's Taysuit is a variable volume drysuit geared for the serious diver. Made of vulcanized and laminated polyester/EDPM natural rubber. Unisuit neck seal and attached hood. Poseidon intake/exhaust valves and inflator hose. Small, medium, large or military size. (\$1195).

**14 Tank Racks**—Tank Holders will keep scuba tanks from rolling about on boat decks or in car trunks. Rubber pads provide the support for tanks in horizontal position and tough, adjustable web straps secure them in place. A set of two (\$27) will handle two tanks. Set of four is \$54. From American Radhial, Inc.



# '84 SHOPPER'S GUIDE



15



16

**15 Dive Knife**—The No. 8536 knife from Wenoka Cutlery features a molded handle with integral guard. Saw teeth are extra fine for better cutting through less dense materials. Line cutter is near tip of blade. The 400 stainless steel blade is 5½ inches long and the knife is 10½ inches overall. Sheath included. \$29.

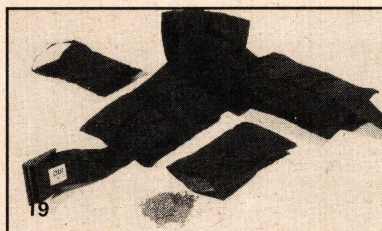
**16 Computer Holster**—The Orca Edge dive computer can now be worn on the pressure gauge hose or other locations for easy access while leaving the hands free. Holster (\$20) will protect the Edge as well. Available in blue or yellow. For information contact Orca Industries, 211 Welsh Pool Rd., Lionville, PA 19353.



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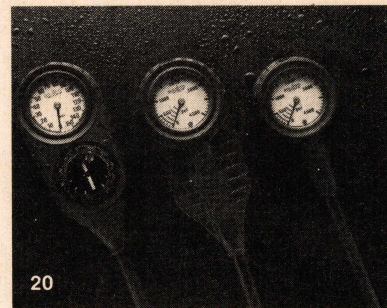


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**17 Zipper-Hooded Wetsuits**—The Argonaut II wetsuit features a full length zipper through the jacket and hood. This facilitates donning and doffing. The suit is available in nylon two material in either ¾ (269) or ¼ (295) inch thickness. Custom suits are available. For more information see your Harvey's dealer.

**18 Neoprene Cement**—Seal Cement is an industrial strength contact cement for neoprene. Hard to mend wetsuit and drysuit repairs may now be tacked together. Available in 4 oz. cans with applicator brush (\$3.25) or in gallons for industrial use. Clear or black. McNett Corp., P.O. Box 996, Bellingham, WA 98227.

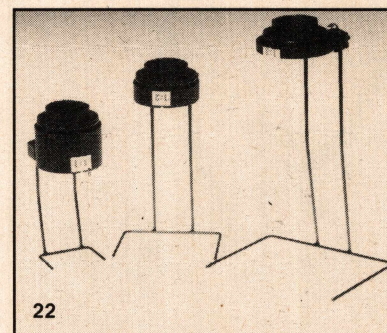
**19 Shot Weightbelt**—The Adjustable Pocket Weightbelt from Diving Unlimited International, Inc. features Velcro® closure Shot-Lock pouches which mold to body contours for comfort. Weightbelt is made of high strength Cordura. Lead shot or solid weights can be used in the pockets. 40 lb. \$58, 30 lb. \$56.



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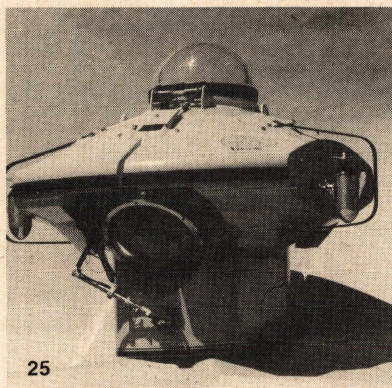
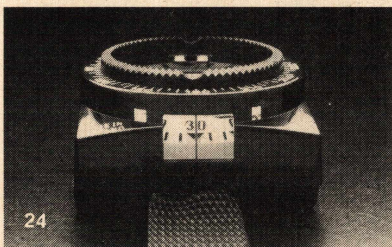
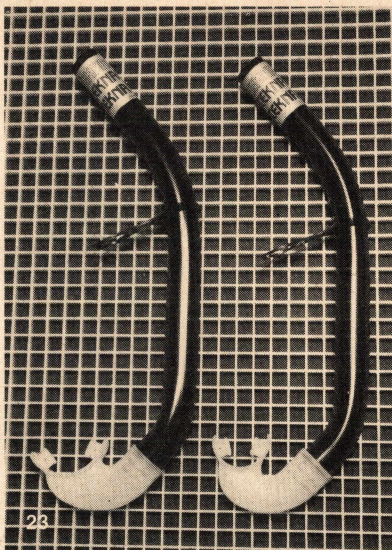
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**20 Gauge Consoles**—Suunto Oy instruments are now distributed by SeaQuest. Depth gauge is an air filled, open bourdon tube type with zero adjusting feature. SPG can handle 4000 psi. Console with 150 or 230 foot depth gauge, SPG and compass, \$169.95. Depth gauges are \$58. Pressure gauge only is \$74.

**21 Jumpsuits**—Fathom jumpsuits are made of Durasoft material, an extremely flexible foam neoprene laminated with soft velour plush interior and a Lycra-spandex exterior. Available in ¾, ¾, and ¼ inch in five colors and two stripe patterns. In custom (add \$37) or stock models and with many options. \$320.

**22 Extension Tubes**—For use with Nikonos cameras utilizing the 35 mm lens, these extension tubes and framers allow the photographer to get in close to small subjects. Made of machined, black anodized aluminum, the tubes are available in ratios of 1:1, 1:2 and 1:3. \$49.95 each or a set of three \$129.95. From Ikelite.

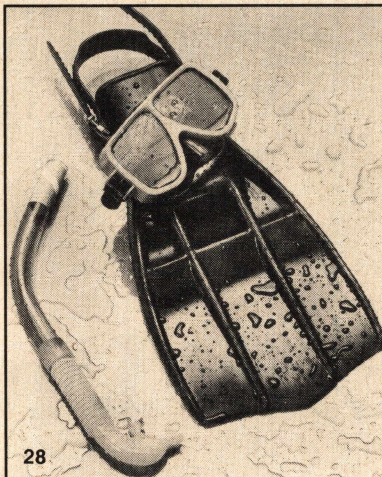
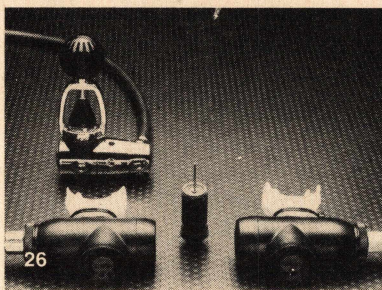




**23 Flexible Snorkels**—Tekna's T-1400s/1500s snorkels (\$14.95) feature flexible, translucent, candy apple red barrels. Tubes are as flexible as neoprene but with three times the tear and ten times the abrasion resistance. Tekna snorkels feature surgical grade silicone Tube-Tab mouthpieces (reg. and small).

**24 Compass**—The Suunto compass, distributed by SeaQuest, is now available with side reading feature. This allows the diver to hold compass up in view and sight directly across it for accurate bearings. Large scale numbers are easy to read. The compass has a strong magnet and is oil dampened. \$40.

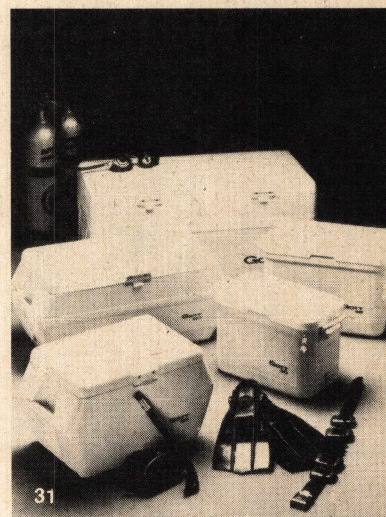
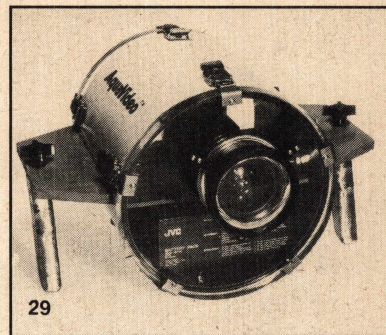
**25 Submersible**—The E 2 sub is an autonomous, one man craft designed for depths down to 320 meters. It is designed for visual inspection, seabed survey and underwater search as well as general diver assistance. Markasub U/W Systems, Bechburgerstrasse 1, Postfach 206, CH-4020 Basel, Switzerland.



**26 Regulator**—The T-2100BX regulator features a high impact resistant structural resin case for the second stage which is lightweight (only 3.7 ounces) and resists ice build-up in extremely cold water. First stage high pressure ports have 7/16 inch threads. Mouthpiece is surgical grade silicone rubber. \$259.95. Tekna.

**27 Drysuit Undergarment**—Off-Shore Diving Equipment's comfort plus undergarment is made of 28 oz., heavy duty synthetic fleece and provides thermal protection for colder waters. Padding at shoulders, seat, waist and knee. Velcro® chest pocket, two front pockets, loops, double tab zipper and socks. \$180.

**28 Snorkeling Gear**—Power-Flo fins maximize thrust. (\$42.50) Flo snorkels are made of non-allergenic silicone. Swivel model adjusts for comfort. (\$15.50) Smooth bore model provides easy clearing. Vision masks come in split eye or single plate design in silicone or black neoprene. (\$24). From Parkway.



**29 Video Housing**—U/W housing will accommodate JVC GZ-S3, GZ-S5 or GX-N5 cameras and the HR-C3 video recorder. 3/8 inch PVC with clear plexiglass plates. Rated to 175 feet. Ikelite-compatible lens ports (dome port is optional). \$995. AquaVideo, Inc., 3145 Salem Ave. So., St. Louis Park, MN 55416.

**30 Dive Mask**—Tabata masks are available with corrective lenses in a range of diopters from -2.0 through -7.0 in 0.5 increments. Masks may be purchased separately or with lenses installed. Mini Splendive (silicone rubber skirt) with corrective lenses. TM-3000QC (blue) or TM-3000QRC (red) \$90 with case.

**31 Cooler Chests**—Made in five sizes, 30, 48, 50, 80 and 172 quarts, Gott cooler chests feature extra thick, high efficiency insulation in sidewalls and bottom. The 30 and 48 quart sizes have air insulated lids and the others have foam insulated lids. From \$25. Gott Corp., P.O. Box 652, Winfield, Kansas 67156.





**Modern, New Training Barge  
Approved By U.S. Coast Guard**

# DIT's DEEP Dive Vessel

BY A.F. STAR

**D**ivers Institute of Technology, Inc. (DIT) in Seattle, Washington has always had a deep dive program—ever since it started its Commercial Deep Sea Diving School back in 1968. Students attending DIT are certified on actual open water dives to depths of 200 feet. "But getting the student to an area where such depths exist, and then having the logistical support to make such dives safely, are large obstacles to overcome," states John W. Manlove, president and co-founder of DIT.

Today, DIT students board a modern and highly sophisticated Deep Dive Barge at the school's permanent moorage on the Ship Canal in Lake Union. DIT's new barge takes the students to Lake Washington where they perform their deep dive training. "Our new students are lucky," Manlove explains, "It hasn't been like this all the time. Just a

few months ago we retired the old *Fossil* which we had used since 1969." The *Fossil* was a scarred and battered 76 foot tug which had been lying in the murky depths of Salmon Bay for about two years when DIT students and staff raised it in 1969. Initially, the tug was used by DIT as a salvage project (sinking and raising it), but it was modified and equipped to conduct deep dives.

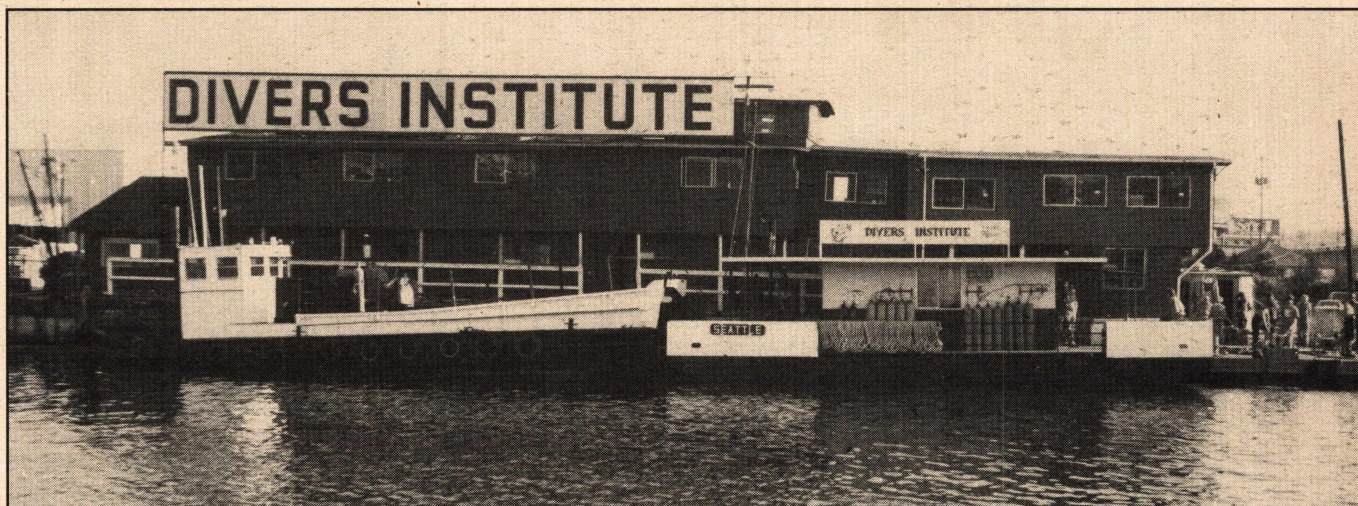
About three years ago, DIT started looking for something to replace the *Fossil*. "It was becoming pretty old and since our classes were getting larger and larger, the *Fossil* no longer could accommodate all of our needs," Manlove went on. But DIT found it wasn't that easy to replace the vessel. There just wasn't anything suitable in the marketplace. "A couple of vessels we looked at could have come close to meeting our needs, but they could not measure up to the U. S.

Coast Guard standards of a passenger vessel and they were around \$1 million each. We have a lot of talent at DIT—almost every instructor has some different area of experience—so we decided to build our own vessel," Manlove said.

DIT started construction on the new Deep Dive Barge about a year and a half ago. Two rusty barges (10 x 46 x 4.5 feet) were found in a storage lot of a brokerage firm in Tacoma, Washington. The barges originally came from a construction company in Little Rock, Arkansas where they were used for pontoons to support waterfront construction jobs. The first item of importance was to clean the vessels up in order to determine the steps of construction necessary to remake the crafts into one deep dive vessel. The cleaning eliminated a couple of cubic yards of Arkansas mud.

Since it was DIT's goal that the Deep





DIT students board the highly sophisticated Deep Dive Barge at the school's moorage on the Ship Canal in Lake Union, Washington.

Dive Barge would gain the U. S. Coast Guard's seal of approval, the first step was to furnish that agency with vessel blueprints. Coast Guard inspectors were impressed by both the plans and the structural stability of the rusty barges and DIT got the green light to proceed. Next, the two barges were fabricated into one barge 20 x 46 feet. Then a 12 x 16 foot diving control house was constructed.

The barge itself had to comply with the Code of Federal Regulations governing shipping. The diving equipment onboard the barge also had to be inspected and certified by the U. S. Coast Guard Commercial Diving Compliance officer.

Last May 31 the DIT staff's many long hours of hard work were rewarded with the issuance of a Certification of Inspection and Approval by the U.S. Coast Guard for the Deep Dive Barge.

The Deep Dive Barge and diving equipment are used throughout DIT's 26 week

commercial diving program, but it is not until after 21 weeks of extensive theory and practical application that the students are taken to Lake Washington for two weeks of deep dive training. The two weeks are spent in preparation for the deep dives, covering helium/oxygen diving theory and emergency procedures, chamber operations with actual dry runs to 200 feet and orientation dives first on HeO<sub>2</sub> and Sur-D procedures.

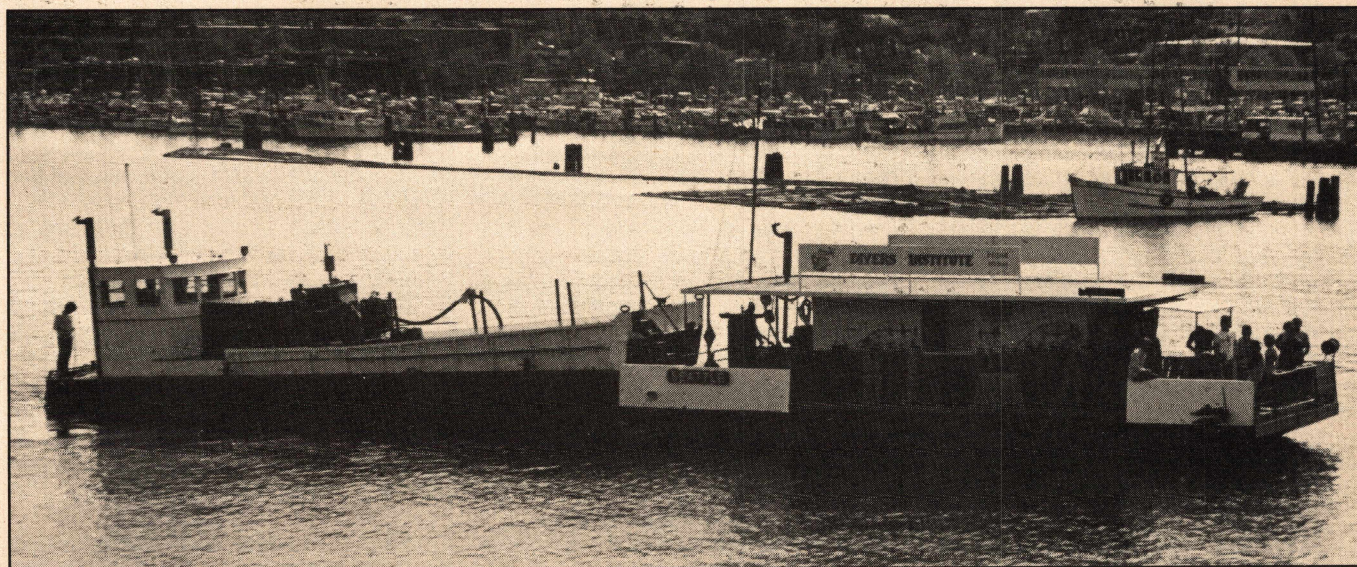
The Deep Dive Barge and surface support diving equipment certified by the U. S. Coast Guard consist of a 120 cfm compressor with volume tank and diesel driven engine, double lock recompression chamber, helium/oxygen diving control manifold, four 300 foot diving umbilicals, divers' communication phones, *Operations Diving Safe Practices* manual and a hydraulic anchor winch. In addition, onboard are all necessary safety items which include life jackets, all under-

way and anchor shapes and signals and first aid supplies.

During the deep dive sessions, the actual dives are conducted first at a 60 to 80 foot range to give the students experience and confidence, then dives from 140 to 160 feet are made. The culmination of the training includes actual dives to 200 feet. With this training under their belts, DIT students have an edge of knowledge, accomplishment and confidence, knowing they can complete dives safely to these depths and beyond. "To our knowledge, we are the only commercial diving school that puts students to this test," Manlove said.

For further details concerning DIT's deep dive program, contact Christy McKibben, Admission Director, c/o Divers Institute of Technology, Inc., 4601 Shilshole Ave. NW, P.O. Box 70312, Seattle, Washington 98107 or call (206) 783-5542.

The barge, constructed by DIT specifically for deep dive training, carries students to Lake Washington to make their dives.



photos/courtesy DIT



# This Business Of Fishes: John E. Randall

BY HILLARY HAUSER

There we were, the eminent ichthyologist and I, swimming together at 30 feet in Hanauma Bay, Hawaii when he handed me his book. It had a black cover with a bright yellow butterflyfish on it. I opened it, and there, on the plastic pages, were brightly colored pictures of the very fishes that were swimming around me like so many bees. And, underneath the pictures were the names of the fishes.

The ichthyologist, Dr. John (Jack) Randall, questioned me with an OK sign, to which I responded with an OK sign of my own. Then, he took off like a shot across the reef and left me with my reading.

*Underwater Guide to Hawaiian Reef Fishes*, the book was called, and as writer of the Fish of the Month series for SKIN DIVER Magazine for 13 years, I knew Randall's work well. After all, I had begged, borrowed and stolen information from him to write the fish accounts. Ichthyology, or the study of fishes, is a very slippery business. (I found this out through my own series of mistakes.) I had learned that were it not for scientists like Randall, no diver would be able to make heads or tails of the fishes he sees.

Ichthyology is a fascinating and many-sided science, and one of the fundamental sides is determining the correct name for each species of fish. This is the realm of the systematist. Sometimes a fish believed to be one species turns out to be two when something such as a different gill raker count is discovered. Or, a systematist may find a previous description of a fish recently named, in which case the earliest name takes precedence over subsequent ones. Randall, as senior ichthyologist for the Bishop Museum in Honolulu, has named over 200 species of fish. Twenty-one have been named *randalli* in his honor (as well as two genera). On the shelves of the fish collection of the museum some fishes still reside in jars of alcohol, waiting to be described.

The naming of new species is just a small part of the ichthyologist's task. He must not only ascertain the correct scientific name of species already described, but document the characteristics by which they can be distinguished from one another. It is estimated that there are 20,000 different kinds of fishes on earth. As no one could learn them all, ichthyologists tend to specialize in specific groups. Randall's favorite families are the

surgeonfishes, wrasses, parrotfishes, squirrelfishes, hawkfishes and groupers.

Our binomial system of naming plants and animals began with the 10th edition of *Systema Naturae*, assembled in 1758 by the Swedish biologist Linne (Linnaeus in Latin, a name often seen after the species name of many fishes). Humans received their name with this 10th edition, too—*Homo sapiens*. Linne's descriptions of fishes and those of other early naturalists were often fragmentary and imprecise. Not infrequently the same species of fish was named more than once. Some of the 18th and 19th century ichthyologists named fishes from one locality, unaware that they had been described earlier from some other place.

The first scientific name properly bestowed is the valid one. Later names are termed synonyms. Sorting out the world's literature (in many languages) of a major group of fishes is a long and difficult job—and if you can imagine 20,000 species of fishes named both correctly and incorrectly in many languages, you get the idea of how complicated the science of fishes can be.

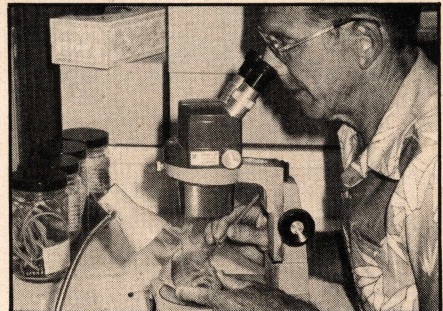
Randall has touched on most facets of ichthyology—the systematic, ecological, behavioral and life history. But in recent years he has concentrated on the classification of Indo-Pacific fishes—those of the tropical and subtropical Indian, Central and Western Pacific.

However, it is through scuba diving that Randall has contributed most to ichthyology. Since 1965, when he joined the staff of the Bishop Museum, he has raised the number of lots of specimens (one lot being those specimens of the same species taken at the same time and place) from 5000 to nearly 30,000. While diving, he has observed intermediate individuals that linked different-named juveniles to adults and he has witnessed the courtship and spawning of different colored wrasses and parrotfishes previously thought to be different species but which in reality were sexual color phases of the same species.

Diving ichthyologists comprise a special breed of scientist, but among them, Randall is extraordinary.

He never stops.

At age 59 he is going on 29, and his co-workers describe him as moving through the water like he does on land—fast. Besides the new waterproof guide to



photos/Ben Patnoi

Hawaiian reef fishes, he wrote the very popular *Caribbean Reef Fishes* (soon to appear in a new edition with a section of his underwater photos of fishes added). He has written 290 scientific and semi-popular articles on subjects ranging from bony fishes to sharks and from *Acanthaster planci* (the crown-of-thorns starfish) to the biology of the queen conch. Presently in press are the hard cover version of the Hawaiian fish book (which will contain the same photos, plus text) and *Red Sea Reef Fishes*, the result of eight diving expeditions to the Red Sea.

Randall was home for three weeks when I visited him in Honolulu, and in between our talks he answered a mountain of mail; reviewed proposals and manuscripts (including one of my own); finished up some loose ends for *Red Sea Reef Fishes*; started the writing of accounts for six fish families for a revised edition of Smith's *Sea Fishes of Southern Africa*; checked the first of a series of Bishop Museum publications entitled *Indo-Pacific Fishes*; and with his assistants at the museum, he also curated a number of the fishes taken during his last trip.

One evening, as we talked at his home in Kaneohe, E.H. Chave, a marine biologist/author living in Honolulu, came rushing in with a few small fishes and a crab she'd collected from 600 feet that afternoon and asked him to photograph them. The animals were all very dead looking creatures, lying frozen at the bottom of an ice chest.

Randall stopped everything he was doing, laid out each fish and the crab, pin-

(Continued on Page 92)



# Diver's Calendar Of Coming Events

BY BONNIE J. CARDONE

**P**resented here, for the first time, is a comprehensive listing of the opening and closing dates for the taking of game by scuba divers in all states that have such regulations. Also listed are the major film festivals held in the United States. For more information on these latter, consult our Diver's Calendar or Film Festivals 'n Symposiums features either the month previous to the event or the month it is being held.

Keep in mind that our opening and closing dates are meant to jog your memory and lack such details as the hours game may be taken; what species are involved; specific areas in which game may be taken; or any restrictions on game taking. Check the regulations in your area for specifics. If your state is not represented on our list it is probably because there are no seasons for the taking of game—it is either legal or illegal all year-round—or because the seasons vary from area to area within the state.

## MARCH

- 1 Alaska, Oregon and Washington halibut seasons start
- 2 New Jersey striped bass season starts
- 10 Boston Sea Rovers
- 15 Arkansas spearfishing season ends
- 16 S. California abalone season starts
- 17 Greensboro Underwater Film Festival (Greensboro, NC)
- 21 S. California lobster season ends
- 23-25 Underwater Canada '84 (Toronto)
- 31 Underwater New York (Auburn);  
Florida crawfish season ends;  
Maryland oyster season ends;  
Montana spearfishing season ends;  
Oklahoma spearfishing season ends;  
North Carolina oyster season ends

## APRIL

- 1 Maine spearfishing season starts
- 15 Maine scallop season ends
- 20-22 Oceanfest (Miami, FL)
- 27-29 Beneath the Sea (Rye, NY)
- 28 Underwater '84 (Boston)

## MAY

- 1 Rhode Island blue crab season starts
- 4-6 Our World-Underwater (Chicago)
- 12 Sea '84 (Oakland, CA);  
Seaview '84 (St. Louis, MO)

- 14 Florida stone crab claw season ends
- 15 Rhode Island oyster season ends
- 31 Florida oyster season ends;  
Hawaii lobster & Kona crab seasons end;  
N. Carolina scallop season ends

## JUNE

- 1 Utah spearfishing season starts
- 15 Arkansas and Maryland spearfishing seasons start
- 30 N. California Dungeness crab season ends;  
Maine spearfishing season ends

## JULY

- 1 Nebraska, South Dakota and West Virginia spearfishing seasons start
- 15 Nebraska bullfrog season starts
- 26 Florida crawfish season starts
- 30 N. California Dungeness crab season ends
- 31 South Dakota largemouth bass spearfishing season starts

## AUGUST

- 31 South Dakota spearfishing season ends

## SEPTEMBER

- 1 Hawaii lobster & Kona crab seasons start
- 2 Florida oyster season starts
- 5 Utah spearfishing season ends
- 7-8 San Diego Underwater Film Festival
- 15 Maryland oyster season starts;  
Oregon Dungeness crab season ends;  
Rhode Island oyster season starts

## OCTOBER

- 1 West Virginia spearfishing season ends;  
Northern North Carolina oyster season starts
- 2 Rhode Island bay scallop season starts
- 3 S. California lobster season starts
- 15 Southern North Carolina oyster season starts
- 16 Florida stone crab claw season starts
- 19-20 Underwater Film Symposium (S. Beloit, IL)
- 31 Alaska, Oregon and Washington halibut seasons end;  
Nebraska bullfrog season ends

## NOVEMBER

- 1 Maine scallop season starts
- 13 N. California Dungeness crab season starts
- 17 Baltimore Underwater Film Festival
- 30 Rhode Island blue crab season ends

## DECEMBER

- 1 Montana spearfishing season starts;  
N. California Dungeness crab season starts;  
Oklahoma spearfishing season starts;  
Oregon Dungeness crab season starts
- 30 New Jersey striped bass season ends
- 31 Maryland and Nebraska spearfishing seasons end; Rhode Island bay scallop season ends;  
South Dakota largemouth bass spearfishing season ends

## JANUARY

- 14 S. California abalone season ends



## THE INFLATABLES



TOP OF THE LINE-DESIGNED FOR DIVERS

# NOVURANIA CANGURO 450 GS

TEXT AND PHOTOGRAPHY BY ERIC HANAUER

**W**hat the heck is a canguro? In Italian, it's one of those Australian animals with a pouch that hops around. It's also an inflatable boat, made in Italy, which is returning to our shores after a four year absence. Always reputed to be an excellent handling boat, Novurania's Canguro series has been extensively redesigned for the '80s to perform even better.

With its deep-V wooden keel, Novurania had become the standard against which the ride and turning ability of other inflatables were compared. But the company had not established a strong sales organization in the United States, so they pulled out of our market in 1979. Now that they are back, they intend to stay and are putting more effort and money into building a strong organization here.

Novurania boats come in three series: Pram, Poseidon and Canguro. Prams are the small tenders for larger boats. Poseidons are the basic sportboats, with fabric bowdodger. The Canguro GS series represents the top of the line, with four boats, ranging from 13 to over 17 feet. The object of our attention this month is the 450 GS. At 14 feet, 9 inches it is the second largest boat in the line. It will accept a 2000 pound payload and an engine up to 70 horsepower, although 40 is recommended for all but the heaviest applications. Our test boat was a bright red-orange, had a unique folding wood bowdodger up front, and was equipped with the optional remote steering system and inflatable seat.

Franco Donno, Italy's leading inflatable boat designer, developed the new Canguros. Close to 50 percent of Novurania buyers are divers, so the boats were designed with their needs in



The Novurania Canguro 450 GS will carry five divers and can handle an engine up to 70 horsepower. The boat has a folding wooden bowdodger and is made of 1200 denier Trevira fabric coated with neoprene and Hypalon for durability.

### NOVURANIA CANGURO 450 GS

Length.....	14' 9"	Capacity.....	8 or 5 divers
Interior length.....	10' 3"	Maximum hp.....	70 (40 recommended)
Beam.....	6' 2"	Keel.....	Wood
Interior width.....	3' 1"	Floorboards.....	Wood
Tube diameter.....	1' 9"	Color.....	Red or gray
Number of compartments.....	4	Material.....	Trevira/neoprene
Weight.....	222 lbs.		/Hypalon
Payload.....	2000 lbs.	Price.....	\$4,550



mind. Perhaps the major change is lengthwise seam construction to improve rigidity. Most inflatable boats have lateral seams. Tube diameter has been increased, the keel is stronger and heavier and the hull has a deeper V than before. The end result of the changes is to make a good boat better. It can now carry more cargo and more horsepower and its already fine handling has been improved.

Additional detail changes include heavier rubbing strakes and new plastic valves, which are actually more expensive than the old metal ones. These latter cannot corrode and are easily removed and replaced if necessary by opening a snap ring with a set of needlenose pliers. A quarter turn of the valve body with the fingers releases air.

Inflation is accomplished by means of a plastic foot pump. The recommended pressure is four psi, a high figure for an inflatable boat. This is possible because of the Canguro's Trevira base fabric. Unlike nylon, Trevira does not stretch, so the Novurania cannot be overinflated. The 1200 denier Trevira is coated with neoprene and Hypalon for resistance to chemicals, atmospheric pollution and sunlight. The bottom receives two layers of Trevira for added strength. When inflating the boat, one merely pumps until the foot pump won't work any more. A pressure gauge is offered only as an accessory for those who need that kind of security.

Novurias are not cheap boats. The company's philosophy is to build the best boat possible, then charge what is necessary to make a profit. This is evident in the boat's workmanship. Everything fits. The seams are straight and are taped both inside and out. All the wood is high grade marine mahogany plywood. The rugged transom is 16 plies thick, as is the keel. A rubber bumper attached to the bottom of the keel minimizes wear and protects the wood. The two piece keel snaps into place and is held there by a groove in the bottom of the interlocking floorboards.

Floorboards and stringers are made of the same high quality wood as the keel and the transom. They look beautiful when new, but will undoubtedly prove to be a high maintenance item. Novurania is one of the last holdouts against the trend toward aluminum boards and stringers. Indoor-outdoor carpeting is highly recommended to protect the floor from scratches and dings from tanks, weightbelts, shells, wreckage and whatever else divers bring on board.

Novurania's unique bowdodger is also made of mahogany. It is hinged to fold forward and tuck under a bow flap to increase interior space, but still leaves a splash free storage area up front. It can be removed completely to allow maximum room for passengers.

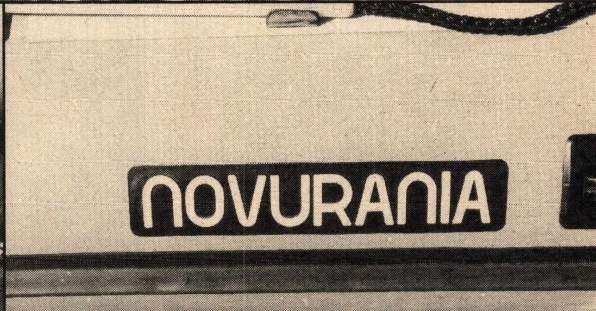
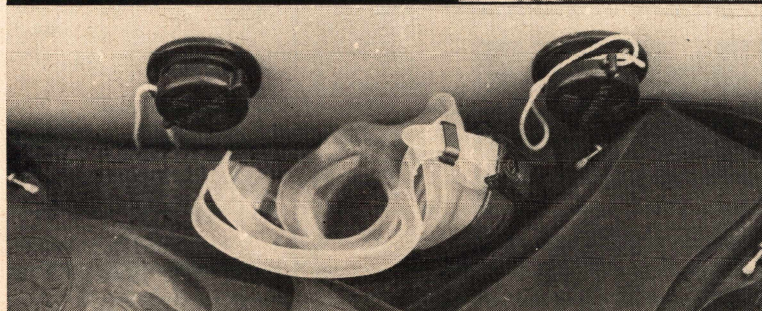
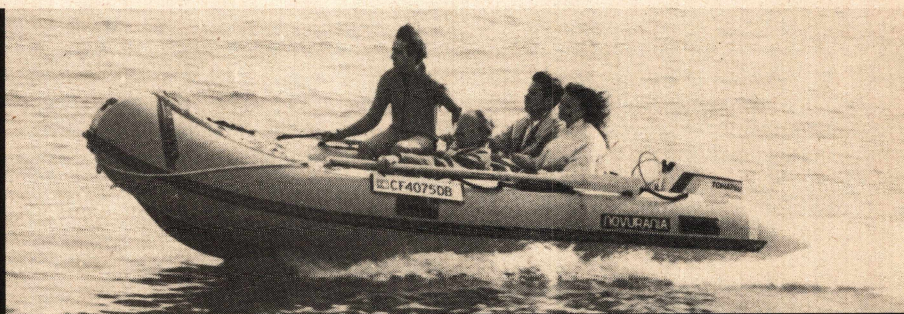
With the bowdodger in place, our test boat accommodated five persons and a set of diving gear, despite the room taken up by the optional steering system and inflatable seat. The Tohatsu 40 horsepower engine brought it right up on a plane. In straight ahead running it bounced a bit over the light chop, but tracking was straight and true. The most impressive thing about the ride was the boat's turning ability. This one doesn't feel like an inflatable boat. It turns on a quarter and gives you change. The deep-V wooden keel really bites into the swell and holds, offering excellent stability and no sign of sideslip. We never had an opportunity to test the old Novurania, but handling is definitely the strong suit of this one.

Although the remote steering took up room which could be used for passengers and dive gear, I must admit I enjoyed using it. Novurania's steering unit is located near the stern, in the smoothest riding part of the boat. It really gives the skipper a feeling of stability and control. If long trips are planned, this is an accessory which makes sense.

The Canguro is fairly complete as it comes from the factory. Along with the foot pump and wood bowdodger, collapsible oars, a repair kit and carrying bags are standard equipment. Even a mast is included to fly the diver's flag of your choice. The option list includes launching wheels, gas tank racks, a boat cover and a rope boarding ladder.

Most inflatable boats don't lend themselves to long trips over open water. The Novurania Canguro 450 GS does. A close look at the deep-V hull configuration will show you why. It has the look and the ride of a hard hull boat. With the optional steering to reduce driver fatigue, this boat will handle trips of 20 miles or more in moderate seas with minimum spray and discomfort. Up to four divers can be handled on long trips, with an additional one on shorter jaunts. Its size requires a trailer for hauling to the dive site. The diver who is looking for a long range inflatable boat should give this one careful consideration. The 450 GS sells for \$4,550. For information, contact the distributor: Novurania of America, Inc., 2909 Oregon Court, C 1, Torrance, CA 90503; (213) 320-8850.

The deep-V wooden keel gives the 450 GS the look and ride of a hard hulled boat. The boat offers excellent stability without sideslip. New details on the boat include heavier rubbing strakes and plastic valves. Although remote steering takes up room which could be used for passengers and gear, if long scuba diving trips are planned, this accessory makes sense.







# SEA JACKET

SEAQUEST BODY HUGGER BUILT TO HANDLE TOUGH DIVING **BY JIM WALKER**

Everything about the SeaQuest Sea Jacket V buoyancy compensator is classy. From its sleek shape to its innovative, cummerbund-like waist band, it shows the careful thought that went into its design. While it's built to handle tough diving conditions, it has a combination of useful features and good looks that's hard to beat.

The Sea Jacket V is designed to hug the body, thereby reducing drag in the water. The flotation chambers are placed to support a diver vertically when on the surface: There are chambers at the sides of the chest, under the arms. While not ballooning outward much when full, the jacket provides a lot of flotation—45 pounds of buoyancy in the large model.

The Sea Jacket V has two bags. The inner one is sonically welded polyurethane. The outer bag is tough nylon fabric, backed by urethane, and has mesh drain panels. It has yellow shoulders and

navy below, with accent piping in yellow and red.

Two large, Velcro® closing pockets are on the front/side chambers of the jacket and are drained by grommets. The pocket on the diver's right is called the Versa-pocket and can be used to keep the octopus second stage secure and out of the way, yet easily accessible in an emergen-

**High visibility stripe on right pocket.**



cy. In this mode a high visibility green stripe on the pocket is exposed to guide your buddy to the octopus. With a simple repositioning of the Velcro it becomes a standard pocket. Inside each pocket is a small stainless steel D-ring for clipping on important items such as car keys. Two Velcro closing hose guides are also included. One is on the right shoulder; the other one, above the left pocket, is for the SPG hose.

The Sea Jacket V has a push-button operated power inflator hose which doubles as an oral inflator. A quick-snap attaching low pressure hose is included with the jacket. A CO<sub>2</sub> detonation device is optional. Those without it retain a stem which allows a detonator assembly kit to be put on at a later date. The jacket also has an overpressure relief valve on the right rear chamber.


The jacket can be deflated by simply pulling firmly down on the hose, which opens a Rapid Exhaust (R/E) valve at the hose/shoulder junction, or by holding the hose above the head and holding the manual deflation valve open.

SeaQuest has gone to some lengths to ensure that the Sea Jacket V fits snugly and comfortably. There are a variety of adjustments which can be made. The most obvious is on the five inch wide, padded, Velcro closing waistband. The amount of overlap chosen decides tightness. In addition, the diver has a choice of waistband sizes when purchasing the jacket. The Velcro closing band cannot be confused with a weightbelt buckle during an emergency.

The front panels of the jacket are closed by two adjustable, snap-in, plastic clasps. These panels are secured to the backpack by a Velcro closing web strap which adjusts to take up slack under the arms, helping to keep the BC from riding up. A four inch wide, padded band forms a cushion between the diver's back and the backpack.

The scuba tank is clamped to the backpack by a nylon web strap with a rubber non-slip insert. It locks with a plastic buckle and Velcro. A web carrying handle attaches to a second band which stabilizes the top of the tank.

Full instructions for assembling and adjusting the Sea Jacket V are included with it. Care should include a freshwater rinsing inside and out after use. The tank band should be adjusted when wet to prevent stretching when in use.

The Sea Jacket V comes with a limited one year warranty on the jacket itself and a three year warranty on the low pressure inflator. With CO<sub>2</sub> stubbed, the large and medium jackets are \$427.50 and \$422.50 respectively. With CO<sub>2</sub> device they are \$440 and \$435. The Sea Jacket V is available at SeaQuest dealers. 



# PALM BEACH AREA

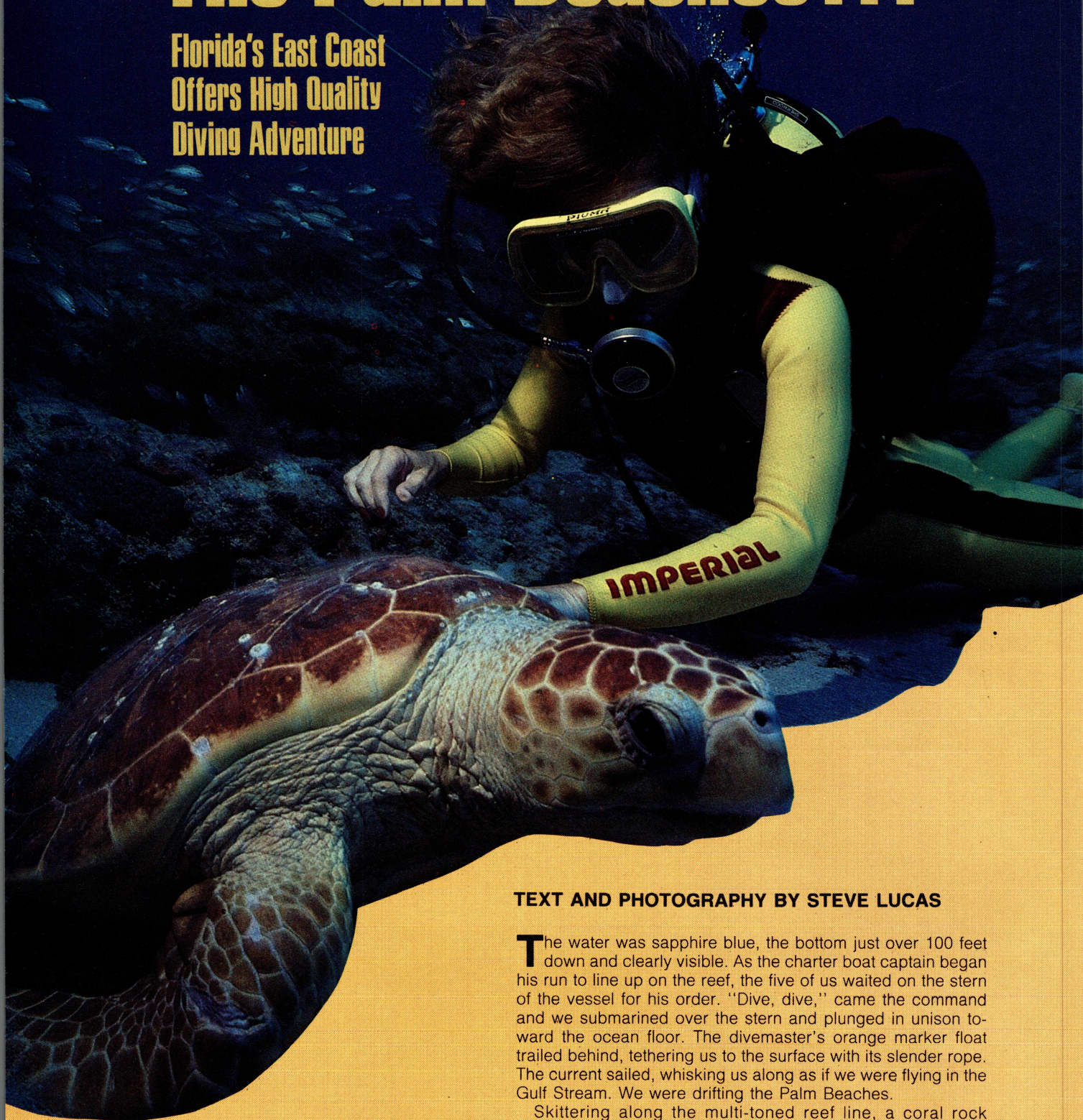
FROM VERO BEACH TO BOCA RATON





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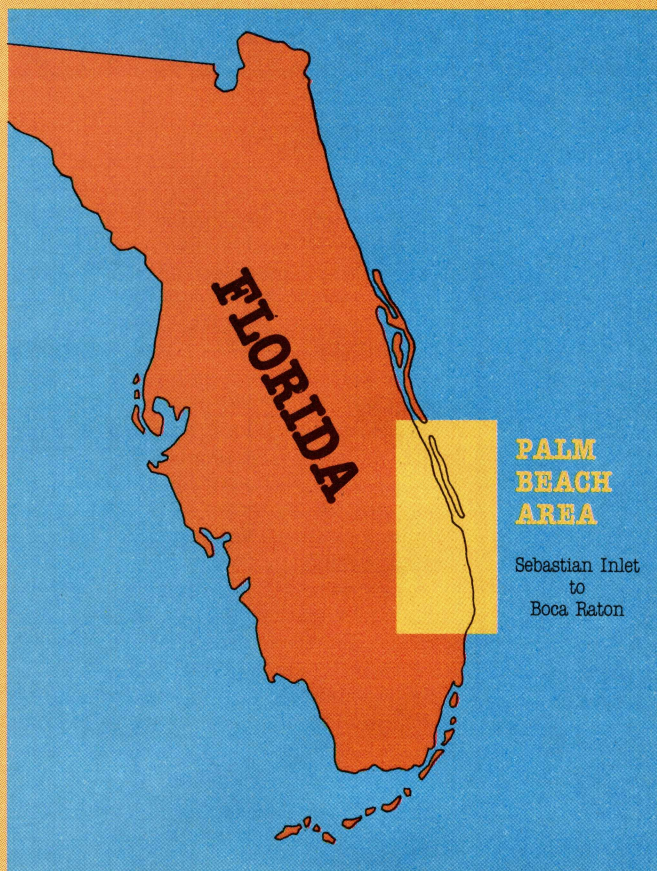
Turtle encounter, Palm Beach

## TEXT AND PHOTOGRAPHY BY STEVE LUCAS

**T**he water was sapphire blue, the bottom just over 100 feet down and clearly visible. As the charter boat captain began his run to line up on the reef, the five of us waited on the stern of the vessel for his order. "Dive, dive," came the command and we submarined over the stern and plunged in unison toward the ocean floor. The divemaster's orange marker float trailed behind, tethering us to the surface with its slender rope. The current sailed, whisking us along as if we were flying in the Gulf Stream. We were drifting the Palm Beaches.

Skittering along the multi-toned reef line, a coral rock seemed to lift up from the bottom just on the edge of our visibility. As the current swept us closer, the rock's image defined itself into one of Palm Beach's most commonly sought after dive companions, a loggerhead turtle. As if waiting for us, the turtle joined our company, turning with us to drift and play directly in the middle of our circle. For 12 minutes it entranced us and seemed to delight in our attention. Together we drifted through





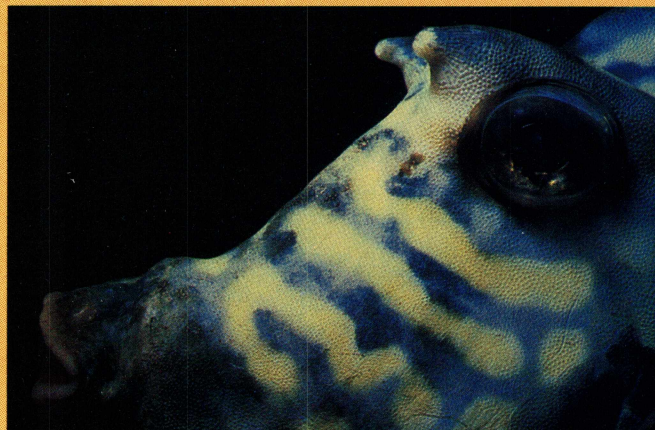
**Florida's Treasure Coast and Palm Beaches**

gardens of gorgonians and schools of snapper, finally retreating to the surface together to renew our respective air supplies.

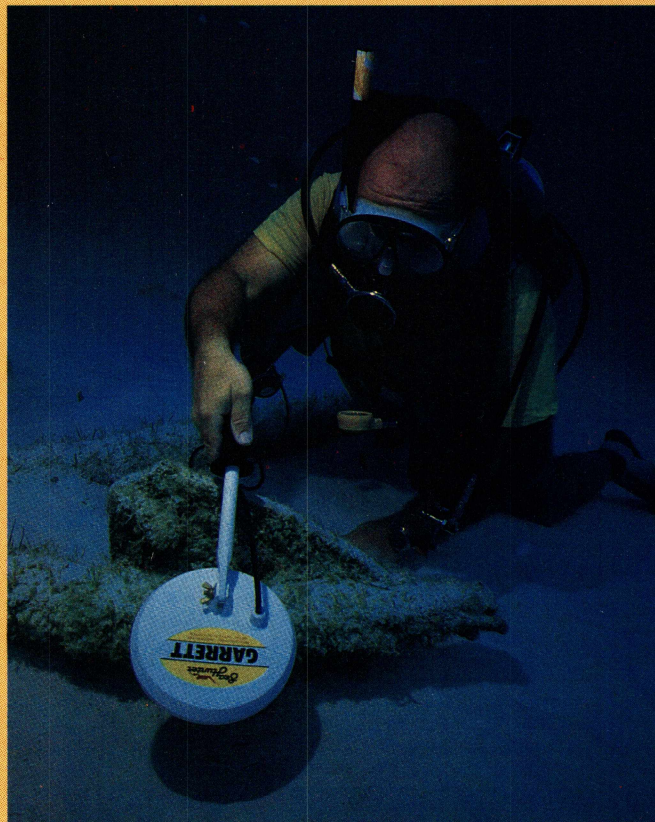
Such encounters are not considered uncommon along the 100 mile stretch of beaches referred to as Florida's Treasure Coast and Palm Beaches. In this area, especially the lower half, the constantly flowing Gulf Stream sweeps almost to land, bringing with it a myriad of majestic deep water creatures. Between West Palm and Lake Worth the stream is as close to land as it comes anywhere in North America—three and one-half miles. Recently, on at least two separate occasions, divers have encountered, swam with, and photographed one of the ocean's mega-giants, the docile whale shark.

Encounters with dolphins, jewfish, turtles, sharks and other deep water creatures are considered the region's forte by divers that regularly venture along it. The area is virtually a collage of all things that drive us as underwater explorers. In addition to the mega-lifeforms that come so near, the area offers an array of wrecks, created during both war and peace, an aquarium of tropical reef creatures that swim against a backdrop painted by an abstract artist and the infecting fever created by the lure of gold, silver, and jewels: Spanish treasure.

At the heart of this strand of beach and reef are the cities of Palm Beach and West Palm Beach. Known internationally for their wealth and opulence, their coastlines are strung like a fine pearl necklace with miles of beachfront mansions. At least one of Palm Beach's mansions is open to public display. The former home of Henry Morrison Flagler, co-founder of Standard Oil and founder of the Florida East Coast Railway that originally connected Key West and all of the Keys to the peninsula of Florida, is now a museum. Built in 1901, Whitehall has been magnificently restored with many of the original furnishings offering a glimpse into the ultra-wealth of the past and present. Flagler played a vital role in the establishment of Florida as a tourist state and was responsible for the growth of many of South Florida's original communities.



**Trunkfish, Palm Beach**



**Looking for treasure, Treasure Coast**

In addition to the opportunity to visit one of the area's mansions, there are many things to see and do in and around the Palm Beaches. West of I-95 is the 640 acre Lion Country Safari. With eight miles of paved roads that wind through a simulated African veldt, lions, giraffes, rhinos, zebras, antelope and chimpanzees are free while people are "caged" in their cars. The even more adventurous can take an Everglades airboat tour through the bird filled sawgrass and alligator inhabited swamps. For golf fans there are 74 golf courses in Palm Beach County. Romantics can take a Lake Worth tour by the mansions and down the Intercoastal Waterway aboard a genuine Mississippi River paddlewheeler, the *Island Queen*. Shopping is available at dozens of major malls or along the prestigious royal palm lined Worth Avenue, the Palm Beach counterpart to California's Rodeo Drive. Outstanding restaurants prepare world class cuisines and include several dinner theatres with internationally known stars or, you can simply opt for an American cheeseburger.

The Palm Beaches probably offer a greater diversity of land



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## PALM BEACH AREA

activities combined with excellent diving than any other destination in the state. There are at least a dozen quality dive charter boats operating out of or near the Palm Beach inlet. The schedule is similar to that of any of the better known dive resort destinations and virtually equal to the better known resorts in the Florida Keys. Directly out of the inlet several reef breaks run in depths from 30 to more than 100 feet. The ledges near the inlet spring up several feet off the sand floor and provide excellent cover for lobster amid a tapestry of abstractly colored sponges and corals.

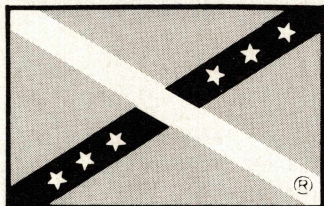
Constantly fed and replenished by the movement of the Gulf Stream, the reefs swarm with all the same tropicals that are common to the Florida Keys, Bahamas and Caribbean. Angels, butterflies and snapper can be found on any of the major reef sections, with many having an uncommonly high collection of schooling spadefish. At times the water seems to be a shimmering, fluid wall of these oddly shaped swimming silver discs. Hiding among the reefs and mingling with the schools of snapper and grunts are a variety of ocean puffers that resemble spiny beach balls, while large green morays, six feet or longer, lurk among the breaks. Frequently, schools of barracuda almost completely surround you while you watch minute, lacy purple nudibranchs decorated with bright, psychedelic yellow lines and dots work their ways among the coral and sponges.

If any single dive has become synonymous with the area it is without question the wreck of the 185 foot Greek luxury liner *Mizpah*. Almost completely intact in 90 feet of normally clear water, she lies only a mile and one-half from the Palm Beach inlet. Purposely sunk as an artificial reef, it is a legal fish preserve with no collecting or spearfishing permitted. Having been down for 14 years, she is beginning to deteriorate and entering her hull is no longer recommended. Thousands of fish swarm about her hulk while soft corals have taken a firm and colorful hold. Near the *Mizpah* is the sunken hulk of a patrol boat and the 300 foot remains of the freighter *Amarillys*.

Several miles out from the inlet is a reef system noted only by its depth, 110. At the core of the reef is a large pile of rocks which is, reportedly, owing to the abundance of food fish, frequently visited by a patrol of bull sharks during the winter season. Recommended for advanced divers only owing to its depth and the company you may be found in, it is a pulse driving dive!

South of Palm Beach, along the beach-front cities of Lake Worth, Boynton





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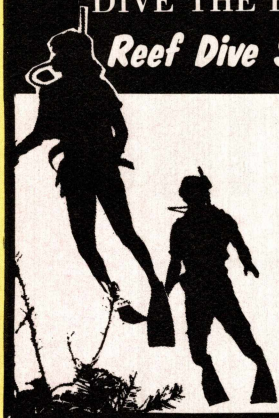
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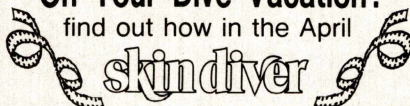
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## PALM BEACH AREA

Beach, Delray Beach and Boca Raton, the reef takes on its most dramatic composition. The ledges frequently jump 10 to 15 feet straight up from the sand sea-floor and are totally encrusted with large, vivid sponges and a patchwork of small corals. Although not as frequented by the really large marine visitors, the reefs take on much the same appearance as those of the Keys, minus the large elkhorn corals. Schools of hundreds to thousands of bluelined grunts swarm about the vertical faces. Smaller tropicals are much more common than on the reefs a few miles to the north. During the breeding season the ledges are besieged by grouper which move in from the deep to spawn. Some sections are riddled with small caves and overhangs filled with glassy minnows and sustain some of the most northerly remnants of the massive brain corals commonly found deeper in the Keys. With the summer warmth of the Gulf Stream the diving sensation is virtually equal to that of being at some Caribbean island.

The area is extremely popular during lobster season. Divers frequently bring back their legal limits and there is the occasional report of the spiny crustacean queuing to march to an unknown destination. This same phenomenon of thousands of marching lobsters was filmed by Cousteau in Mexico and is a popular rerun on his television series. Unfortunately it does not form on any precisely predictable date so divers can plan to be in the water when it happens.

Although the better diving is not highly accessible directly off the beach, there are a few good dives south of Palm Beach that can be reached from shore. The Delray wreck is about one-quarter mile off the southern end of the Delray public beach. In 20 feet, it has been down over 60 years and is fused with coral and sponges. Other near shore reefs can be pointed out by dive operators and retailers in the area.

The most popular way to dive the Palm Beaches is to dive from one of the charter boats and catch a free ride on an underwater fast freight train. At times the current barrels so quickly it is impossible to hold a position for more than a few seconds. At others, the current is more leisurely and only fast enough to allow an unhurried view of the scene as you effortlessly glide overhead. Charter dive-masters trail large, brightly colored float balls and boat captains simply follow the track of the dives. There are no long swims back to the boat and, when done properly, little energy is expended.

The entirety of the Palm Beach to Boca Raton area is extremely popular with



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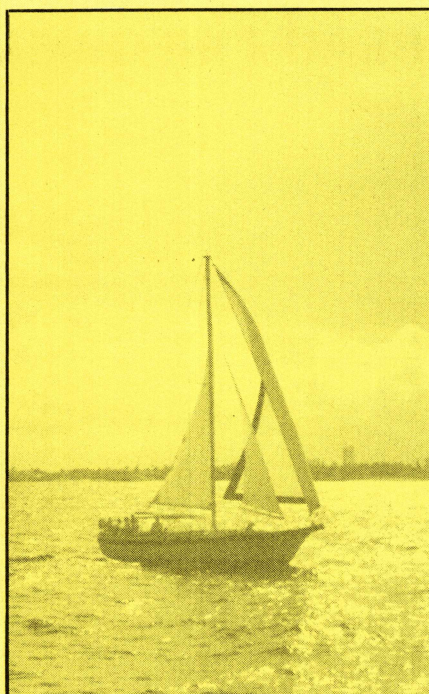


# PALM BEACH AREA

boaters. On an average weekend there may be 100 or more visible at any one time. The sea appears to have been set aflame with the concentration of multicolored spinnakers flying tall from their masts. As a result, Florida has established very rigid rules for diving and snorkeling. If you are in the water with a mask on you must have a red and white divers down flag in tow. There is no distinction between shoreline and offshore dives. If you plan to get wet you must tow a flag or have it flying from your charter or private boat. In light of the recent confusion on the standard dive flag and the Alpha flag, the Florida Marine Patrol considers it mandatory that both be flown! Some beachfront communities in the region have specified beaches where diving from shore is not permitted. For your own safety and to avoid a potentially costly fine, check first and always fly the flags.

North of the Palm Beaches to Jupiter inlet and continuing north to Vero Beach and beyond, the ocean landscape becomes semi-barren. Rolling sand dunes backed by stands of wild sea oats and tall

sea grapes permit a visualization of what Florida must have been like 100 years ago. The Jupiter Lighthouse, 17 miles north of West Palm Beach, is on the site of old Fort Pierce. Begun in 1855, it is the



marker indicating where the land of Florida beach diving territory begins.

As a resort area, the beaches north of the light offer plenty of solitude among the pleasant smells of the citrus groves: free, open space with almost unlimited public access. As an area of relaxation it is sublime. The amenities of excellent hotels and fresh catch seafood restaurants can be found at any of the cities of Jupiter, Stuart, Fort Pierce or Vero Beach. Even a taste of Hollywood can be experienced at the popular Burt Reynolds Dinner Theatre in Jupiter when it hosts well known actors in major productions.

The underwater attractions include the three most infectious weaknesses: giant lobsters, wrecks and treasure! This is Florida's Treasure Coast.

Home to an annual lobster hunt, the Treasure Coast does not necessarily prize itself on quantity alone: Size is more important. There is a prize for the finders of the largest, so simply bringing in a legal sized catch will not suffice. The real winners bring back the monsters. The grand prize capture is almost always in the more than 12 pound range with bulls up to 14 pounds and larger reported. Local divers actually spend months stalking their catches so they can vie for the thousands of dollars in local prizes.

The Treasure Coast's reefs don't have quite the conglomeration of color and corals as do its more southern counterparts. The Gulf Stream takes a turn seaward as it approaches these shores and takes with it the cleaner, warmer water that nurtures the growth of coralline structures. Numerous older reef breaks stretch along the shore with the nearest within short swimming distance at many points. The deeper ones present an oddity for divers with their unusual combination of fishes and life indigenous to both tropical and colder water origins.

As for wrecks, the area is littered with Civil War, turn of the century, and World War II ships that have become artificial additions to the reef. At Vero Beach the wreck of the *Breconshire* can be seen directly from the beach behind the Driftwood Hotel complex. Reachable from shore, the remains of a portion of its 200 foot steel hull protrude from the surface in 15 to 20 feet of water. At Fort Pierce, several largely intact freighters, sunk during the second World War by German U-boats, can be found offshore in 100 foot depths. Local stories tell how one of the sub's captains was later captured with tickets to a local theatre in his pocket. He had prowled and plundered American waters by night and enjoyed the amenities of American culture by day. Just a few hundred feet from Ft. Pierce's beach is the remains of a Civil War paddle-wheeler whose boiler has become home to local reef inhabitants.

Along the shoreline from Sebastian inlet above Vero Beach down to St. Lucie inlet near Stuart are the remains of the

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most celebrated Spanish treasure fleet ever lost to the seas. Ten galleons loaded with a king's treasure from the mines of Central America were lost in a single 1715 hurricane. In sometimes less than knee deep water, the treasure was largely undisturbed for 250 years. With the story of this major archaeological find reported in the January, 1965 National Geographic, the area has become a significant part of marine history and the setting for a continuing legal confrontation between treasure salvors, archaeologists and governments.

For years local beach enthusiasts have occasionally picked up irregularly shaped pieces of silver and gold from the beach, especially after major storms have moved through. Some considered the finds lost pirates' booty since at least one pirate band was known to have worked the area. With the find, and documentation of the first wreck site, the fever for gold spread during the '60s and serious work still continues at several locations. Finds along the beach and in the shallow water have included eight foot long solid gold chains, seven pound gold ingots and elaborate gold and silver jewelry, some decorated with large rough cut diamonds and precious stones. Even rare Oriental pottery has been recovered either totally or partially intact.

Today, local amateur treasure hunters scour the beach with metal detectors after each big blow in hopes of finding a few unrecovered pieces of gold or silver. According to the Spanish archives, the majority of the treasure listed on the ships' manifests is still somewhere at the bottom along Florida's Treasure Coast.

A weekend treasure hunter's best opportunity to dive on one of the galleons is at the Sebastian Inlet Recreational Area north of Vero Beach. There, the McLarty Museum retells the story of the Spanish Plate Fleet and its present location. The remains of the *El Capitana*, one of the ten, are just a few yards off the beach. Cannon and ballast stone are scattered about the ocean's floor and, though treasure is unlikely, the opportunity to swim above a Spanish treasure wreck is quite real.

Whatever your enticement to dive Florida's Palm Beaches and Treasure Coast, one thing is for sure: You will find a diving treasure, albeit unlikely of the golden variety. With excellent facilities and diving almost year-round, swimming in and among the reefs and wrecks and alongside the large and colorful animals that inhabit them is exhilarating.

When our turtle left as we retreated for air, all of us found ourselves waving so long to a friend. It was not intended to be a good-bye. We all have already planned to return and visit him again.

For more information contact: Palm Beach County Tourist Development Council, 324 Datura Street, West Palm Beach, FL 33401; phone (305) 837-3890.

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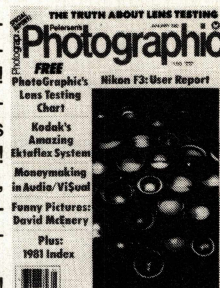
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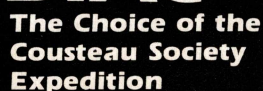
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A federal judge recently refused to let a Florida company take over the salvage of the *S.S. Republic*, a luxury liner that sank off Nantucket in 1909 while carrying a \$500 million booty, including fine wines, jewels and \$3 million in gold coins. In a three page decision U.S. District Judge Walter Jay Skinner said Northern Ocean Services Inc., of Orlando, Florida "does not have a sufficient present interest in this case to justify its intervention" with the salvage operations of Martha's Vineyard Scuba Headquarters. Letters from at least two other parties interested in conducting salvage operations also have been filed with the court.

The *Republic* sank in 235 feet of water about 50 miles south-southwest of Nantucket after it collided in fog with the steamship *Florida*. Four of its 600 passengers perished in the collision. Those who escaped were allowed to leave the ship with only the clothing they were wearing; all other cargo and valuables remained onboard.

Aside from the \$3 million in gold coins, including \$250,000 from a government payroll bound for an Atlantic battleship fleet, all at a time when gold was valued at \$20 per ounce, the *Republic* also contains hundreds of cases of fine wines, such as vintages from the 1800s that sell for thousands of dollars a bottle at auction. In addition, the ship houses hundreds of pieces of fine dinner ware, silver utensils valued at a minimum of \$5,000 per place setting and a bounty of other turn of the century antiques. 🐟

## TREASURE DIVING

(Continued from Page 69)

ure really hasn't changed them. Bob has gone back to his job at the office and Ms. Mimmons is back in the library. As they step into their Rolls Royce we see that Bob has even stayed in touch with his old boss Lucian, who is now his chauffeur.

As they drive along the ocean, Bob realizes that the real treasure they found was the fabulous diving they enjoyed during their search. Suddenly, Bob hollers for Lucian to pull over. He spots something floating in the sea. He jumps out of the car, runs over to the shore and waves to his diving buddy Jim, lost in the Sierras at the start of the film.

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## BUSINESS OF FISHES

(Continued from Page 76)

ning the fish fins and crab appendages up with tiny insect pins. He then painted the specimens with concentrated formalin and in a few moments the fins stayed erect without the pins. Each specimen was then placed in a low-sided glass aquarium over an opening in a table. Below on the floor was a background of flat black for the light-colored specimens and light flat green for the dark ones. He positioned the camera directly above his subjects and shot straight down, the 650 watt lights illuminating the subjects from each side. This technique has produced thousands of scientifically valuable photographs of fishes and invertebrates, many of them published and all of them stored at the museum in freezers.

"When he's gone it takes about 30 days for it to slow down around here," said Arnold Suzumoto, Randall's principal assistant at the museum. "He has inexhaustible reserves of energy and can collect all day long and do his photography of specimens at night while the rest of us are sleeping."

When he's not working with fishes, Randall plays tennis three days a week, and volleyball (three other days, with Bishop Museum staff members). He also swims. In 1980 he entered the 2.4 mile Roughwater Swim off Waikiki, along with nearly 700 other competitors, and came in third in his age group.

Randall said his involvement with fishes started with his mother, in Southern California. She liked to go fishing on barges, he said. ("Dad would get seasick and never go, so she dragged me along.") Also, he was stimulated by two courses he took in biology at Beverly Hills High School, and by reading some of William Beebe's books, as well as Steinbeck's *Log from the Sea of Cortez*. (Later, he was to take John Steinbeck on his first scuba dive.)

While at UCLA studying zoology, Randall and a friend purchased the hull of a 37 foot sailboat and, after completing its construction, named it *Nani*, which is Hawaiian for beautiful. After graduating in 1950 Phi Beta Kappa with a bachelor's degree in zoology, Randall sailed *Nani* to Hawaii with three friends. Once on Oahu, he took a position of graduate assistant in zoology at the university.

There he met his future wife, Helen, a lovely girl of Chinese ancestry who was also a graduate assistant in zoology. Together, the two taught laboratories in embryology, the first lab session involving a demonstration of the reproductive organs of the chicken. Jack and Helen's first date, in fact, was a chicken dinner on the *Nani*, which consisted of the hen and



rooster they had dissected that afternoon.

In 1955, after Randall received his Ph.D in zoology from the university, he set sail for Tahiti on *Nani* with Helen, daughter Lori (then two and one-half years old) and one crew member—for a year and one-half study of certain groupers and snappers under consideration for



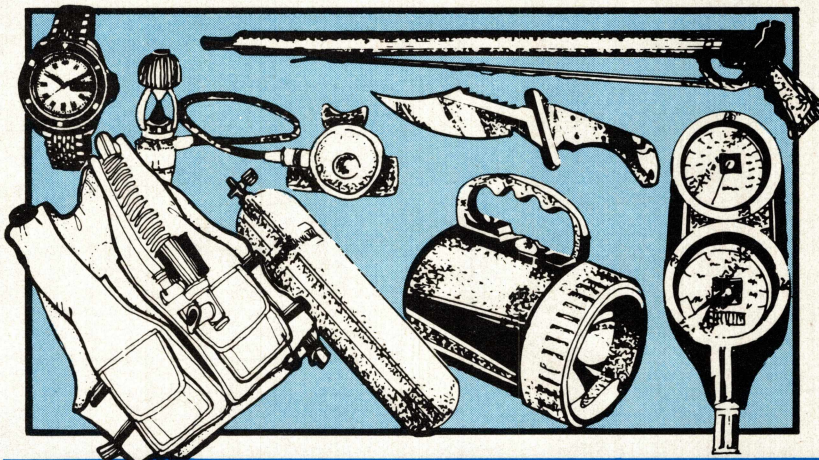
photo/Hagen Schmid

introduction to Hawaiian waters. Later, a job offer as assistant research professor at the Marine Laboratory at the U. of Miami took them to Florida; a year later, the family (now including son Rodney) moved to St. John, U.S. Virgin Islands, where Jack directed a three year marine biological survey of the Virgin Islands National Park. From there they went to Puerto Rico, where Jack was a professor in the biology department at the University of Puerto Rico and served as director of the Institute of Marine Biology. The Randalls returned to Hawaii in late 1965, when Jack became director of the Oceanic Institute. Since 1970, he has been full time with the Bishop Museum.

Randall loves the physical activity of getting into the ocean better than any other part of his work. The sea was rough the day we chose to dive in Hanauma Bay and as we stood on the beach looking out at the ocean, the right side of the bay, called Witches Brew, looked like a maelstrom. The left side was nearly as bad. This didn't stop the diving ichthyologist at all. He helped me on with my tank and together we walked halfway out on the left side, where he quickly assembled his gear and jumped in. I caught up with him somewhere on the reef, 30 feet down. That is when he handed me his book—the one with all the fish pictures.

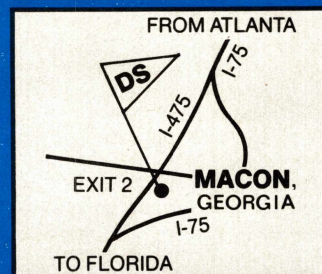
"If I were not a diver, I wouldn't be able to do what I do," Randall said. "Diving gives this science an entirely new dimension." (Note: *Underwater Guide to Hawaiian Reef Fishes* is available for \$9.95 from Harrowood Books, 3943 No. Providence Road, Newtown Square, PA 19073.)

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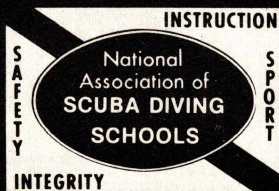
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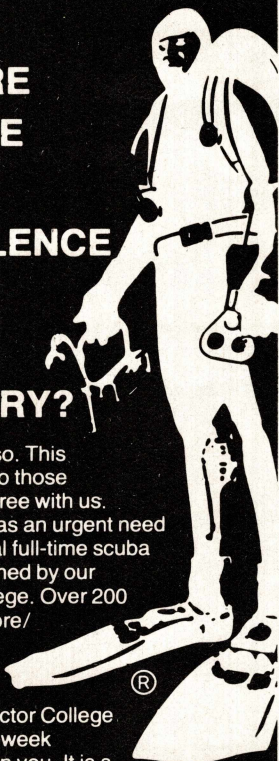
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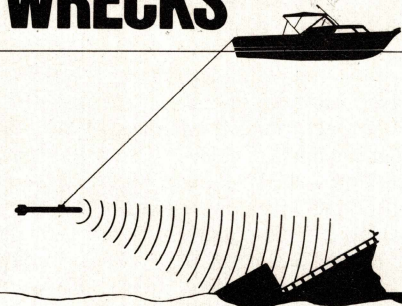
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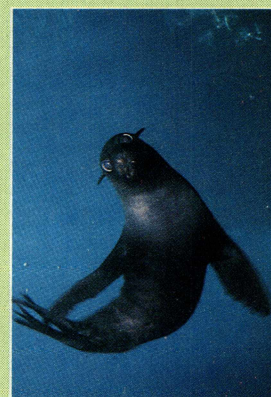
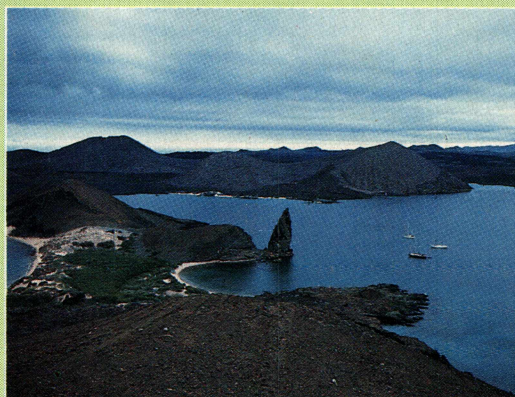
## SECTION

**T**here are certain destinations which by their very nature define for us the word adventure. Simply mentioning their names evokes feats of physical or intellectual accomplishment that remain at the limits of man's attainment. One of the greatest of these is the islands called the Galapagos.

Among these islands a young British naturalist observed phenomena which for endless hours rubbed a nerve in his imagination. He observed. He took copious notes and sketches. He dared to speculate along the limits of then-hallowed theory. How, he wondered, could 13 different finches found on different rock islands of the Galapagos differ only in the size and form of their beaks? Only, he concluded, if they had all descended—evolved—from an original strain of finch and adapted to local feeding conditions. This was such intellectual heresy that the young Charles Darwin hesitated before publishing his findings. Meanwhile, another naturalist, Alfred Russell Wallace, independently posited the germ of Darwin's theory. Thus, pressed to go public, Darwin stunned the scientific world with his *Origin of Species* and the Galapagos Islands were instantly enshrined in the pantheon of adventure.

Cruising and diving the Galapagos today, there is no hint of notoriety or fame. The echoes of Darwin's shout of discovery stir only in our minds. The islands themselves are scattered, volcanic outposts flung across countless miles of otherwise empty sea. Great flattened cones soar along the horizon, reminders of the Galapagos' birth in flame and eruption a few million years ago.

After their noisy birth, these remote islands were totally devoid of life. Gradually, their position in the Humboldt Current began to bring them all



## THE GALAPAGOS: Adventure in the Enchanted Isles

TEXT AND PHOTOGRAPHY  
BY CARL ROESSLER

manner of survivors. Trees and brush carried out to sea by the rivers of Chile and Peru drifted ashore on these untouched bastions of basalt. On this waterborne debris were birds, lizards and plant life suddenly thrust into surroundings devoid of competition. These peaceful plants and animals grew in countless wonderful forms dictated solely by their inoffensive surroundings—algae-grazing marine iguanas, great slow sleepy tortoises, cormorants who swim but cannot fly and a menagerie of other wonders.

Many readers know that up to one-third of the Galapagos' terrestrial species exist nowhere else on earth. That is, after all, the Galapagos' claim to

fame. What you may not know is that a similar proportion of the inshore marine species are also unique. On the fortress-like rocky flanks of these islands there are brilliant *Heliaster* starfish in green or red or orange or yellow. There are carpets of encrusting sponge in a rainbow of colors. There are pencil-spined urchins who bore holes for themselves in solid rock. There is the astonishing wrasse-assed bass, whose front half is like that of a grouper, and you can guess the rest. There are black coral trees in flaming canary yellow. There are occasional carpets of coral polyps in hot reds, pinks, yellows, oranges and greens.

And there are the fish. From the green darkness of the open sea come schools of immense amberjack, the wolves of the sea, seeking unwary fish; on the unusual shelved parapets of the volcanoes there are sleeping green turtles, sometimes several together. These reptilian browsers are not what I'd call intellectual giants; you'll sometimes find them with their heads stuck in a crevice and their bodies sticking out, thinking they are hidden. They seem taken aback when



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photos/Stephen Frink

From our Pennekamp Portfolio...Pennekamp Park is incredibly prolific in all forms of sea life. These starfish are but a small sample of the multitude of marine creatures inhabiting French Reef.

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## THE GALAPAGOS

the strobes begin firing. You can almost read the thought in their eyes, "How did you find me?"

See & Sea Travel of San Francisco has been bringing groups to these islands of enchantment since 1972; the cruises are non-stop voyages of discovery, with a heady pace on land and underwater. For one thing, these cruises make all of the landfalls usually offered to non-divers. In addition, members average three dives each day. This is because the crossings between islands are made at night, saving the daylight hours for diving and sightseeing.

The waters of the Galapagos are cool (in the 60s) and rich in plankton and larvae. While this supports one of the richest wellsprings of marine life on the planet, it also holds visibility to 50-80 feet.

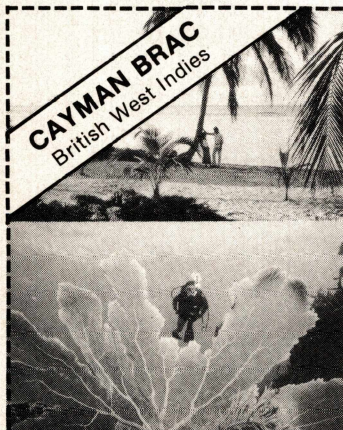
In short, there is a kaleidoscope of the unusual below the surface, plus a whirlwind of land stopovers filled with the Galapagos' legendary terrestrial life—sea



lions, iguanas, doves, cormorants, giant tortoises, hawks, finches, cactus, Sally Lightfoot crabs and other wonders.

See & Sea's Galapagos programs feature two full weeks aboard the 70 foot motor sailer *Encantada*, plus overnight stops in Quito necessitated by airline schedules. After a burst of publicity a decade ago, much of the diving world has forgotten these enchanted islands. Yet they are still there, as when Darwin first walked their shores. Most are uninhabited, so a live-aboard program offers a diver's only access to the great sites. Consider this: Every time you point your camera in the Galapagos, you have a 30 percent chance that your chosen animal subject exists nowhere else on earth. How many dive regions can offer you that? And just imagine if Darwin had been a diver....

For further information, contact See & Sea Travel at 680 Beach Street, Suite 340, San Francisco, CA 94109.



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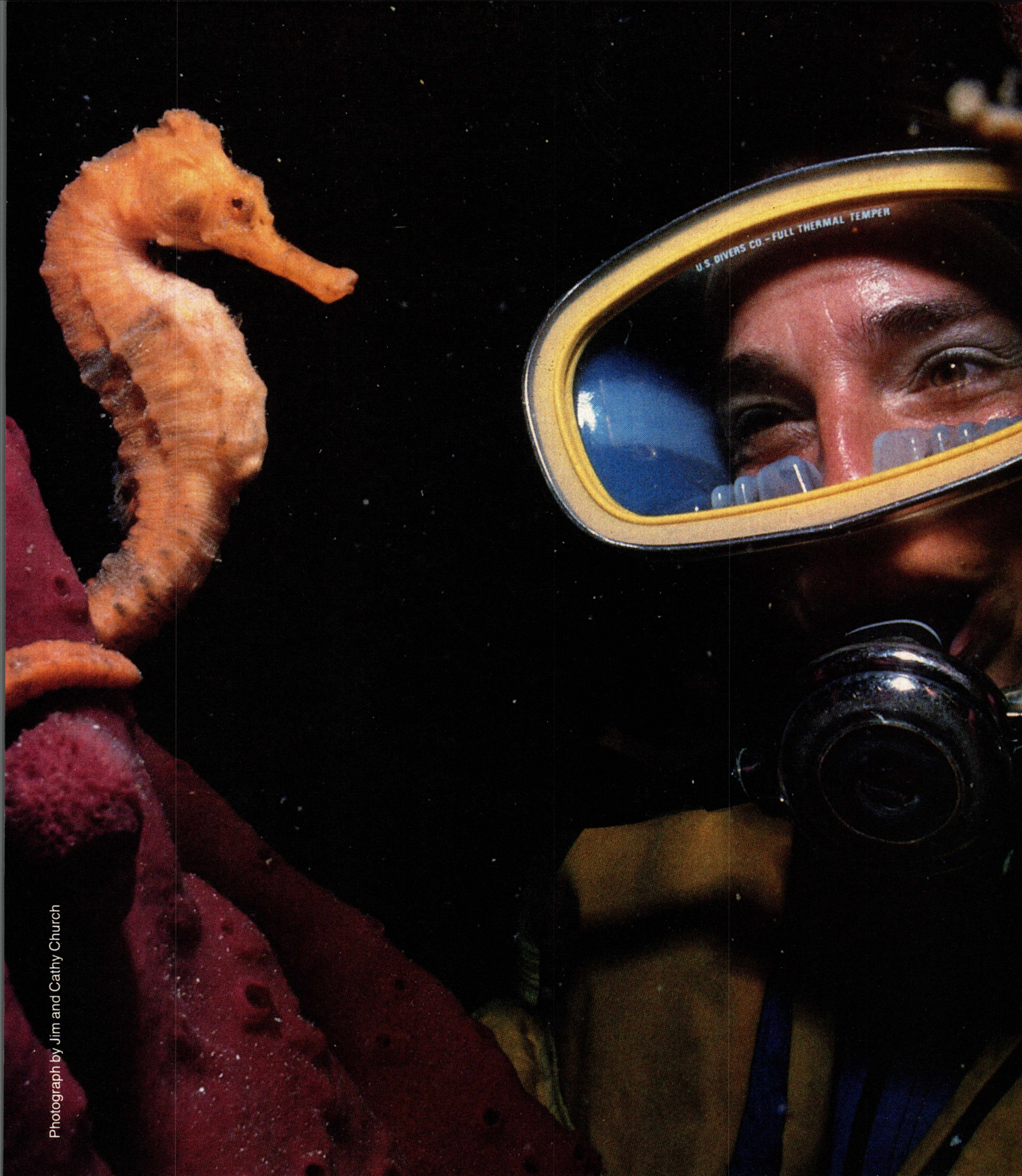
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Photo/Greg Brown





Photograph by Jim and Cathy Church

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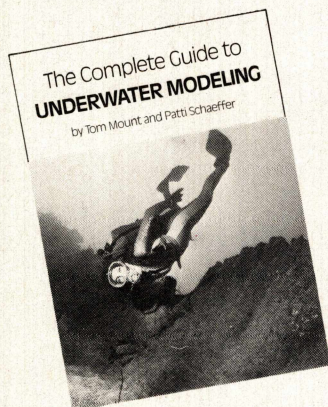
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## CURACAO U/W PARK

During a ribbon-cutting ceremony in December the Commissioner of Environmental Affairs officially opened Curacao's first marine park. The park covers over 12 miles of virtually untouched reefs with 16 moored dive sites, including a wreck dive and several wall dives.

Marine biologists Tom van't Hof and Jeffrey Sybesma of the Netherlands Antilles National Parks Foundation (STINAPA) are charged with day-to-day management of the park. With artist Heleen Cornet, Tom produced the *Guide to the Curacao Underwater Park*.

Dive Curacao & Watersports and the Princess Beach Hotel are catering specifically to divers who want to explore the new underwater park.

For further information contact: Curacao Underwater Park, P.O. Box 2090, Curacao, Netherlands Antilles. 🌊

## PERSONALIZED TOURS

John O'Hanlon of the Dive Shop, St. Louis, MO, is offering personalized instruction/tour guide services anywhere in the world. The program is available with or without instruction. Over 15 specialty courses are available as well as the standard programs, novice through instructor. O'Hanlon is a PADI master instructor and district course director.

For more information about personalized instruction/travel guide programs call or write O'Hanlon at The Dive Shop in St. Louis, Missouri. 🌊

## SPANISH COVE

Spanish Cove has 26 new rooms increasing the hotel's capacity to 100 people. This, coupled with the increased diver capacity from four dive boats and a full-service meeting room, makes Spanish Cove an ideal choice for large dive groups and professional meeting trips as well as for the individual.

Included in the new addition are four suites, perfect for families and honeymooners or as a hospitality room. 🌊

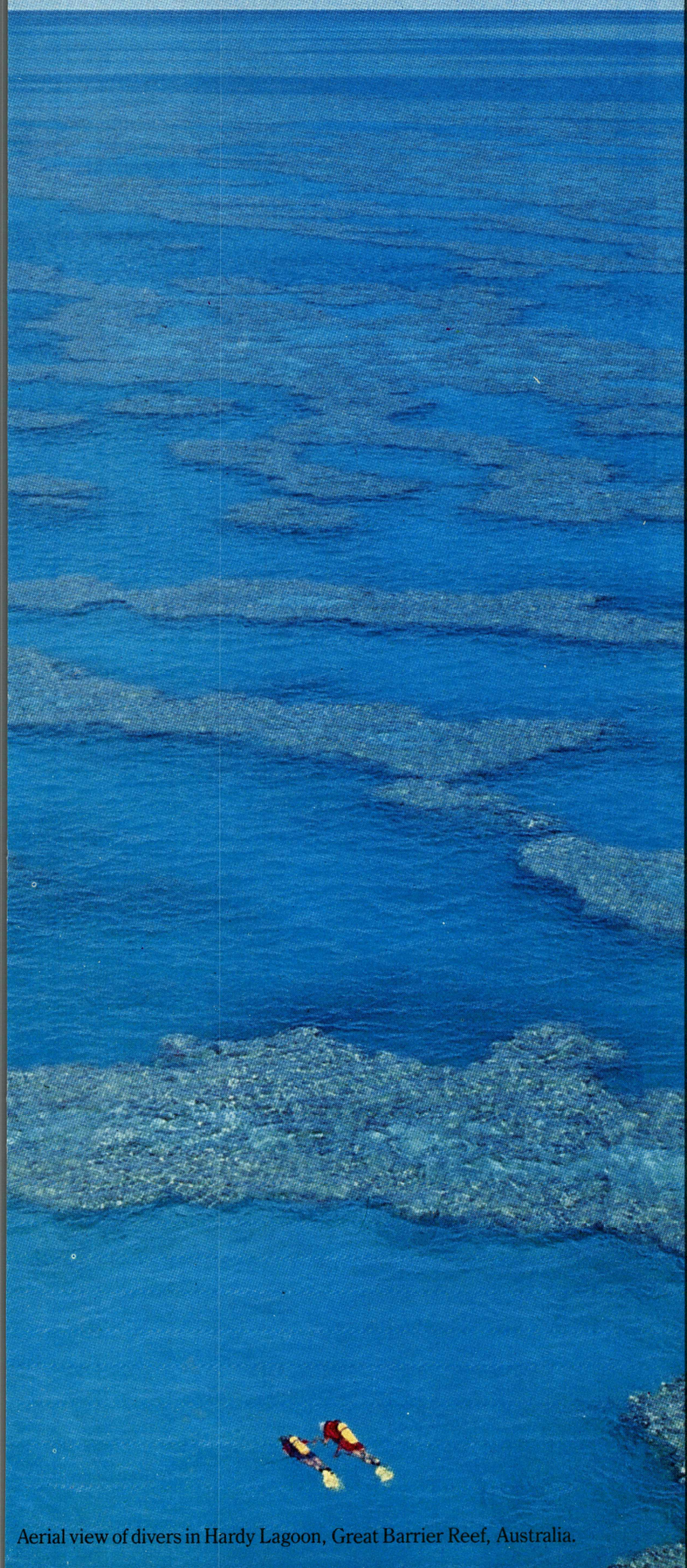
## SUNSET HOUSE

Sunset House Hotel and Dive Lodge on Grand Cayman will be adding nine rooms, all with telephones, for a total of 43 units. A conference room seating up to 20 people is also planned.

The additional rooms will be part of a new block which will also house the lobby, reception area, administrative offices and gift shop. As a result of this expansion, more room will be available in the restaurant and a cocktail bar overlooking the ocean will be an attractive new feature to the dining area. 🌊



# If you haven't dived Australia's Great Barrier Reef, you haven't been down under.



Aerial view of divers in Hardy Lagoon, Great Barrier Reef, Australia.

**F**or the mountain climber, it's Everest. The Surfer undoubtedly the wild waters of Hawaii. The Skindiver his Mecca is 1,600 miles of spectacular coral formation and marine life known as the Great Barrier Reef.

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From Hayman, it's all aboard the 54ft dive boat "Daybreak" for a pleasant cruise to one of the many nearby dive sites.

Venture even further into the reef wonderland either by boat or an Air Whitsunday amphibian aircraft, to such renowned locations at Bait, Hook or Hardy reefs, departing from the Hayman beachfront.

Or for the ultimate experience, spend a few days on the reef itself aboard the fabulous Reef Encounter, moored permanently in Hardy Lagoon. Back at Hayman, the experience continues. Come day's end, relax in your luxury self-contained unit or if you're still feeling energetic venture out to one of the Islands night spots.

So, if you're after the diving holiday of a lifetime, dive Australia's Great Barrier Reef and stay at Australia's premier Island resort, Hayman Island.

For more information, write to: Dive In Australia.  
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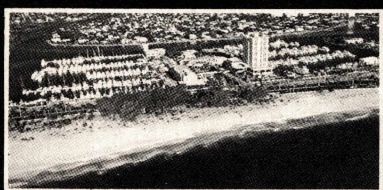
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## JAMAICA PADI FACILITY

SunDivers, Jamaica has been accepted into the worldwide Professional Association of Diving Instructors International Training Facility program.

Since December 1982, SunDivers has offered PADI open water and continuing education courses conducted by Shawn McDermott. Referral courses and/or dive packages may be arranged by contacting SunDivers in Runaway Bay, Jamaica, West Indies. 🌴

## SCUBA WEIGHT LOSS PROGRAM

The Scuba Safety Program in Southern California has a mobile weight loss camp called Get Fit, with special emphasis on snorkeling and scuba diving. The camp operates in the summer months on Catalina Island and Hawaii. Get Fit participants lose an average of four to eight pounds per week!

The package price includes all meals, scuba gear and instruction, residence, all water activities and entertainment.

For further information contact: Get Fit, P.O. Box 178, Surfside, CA 90743; (213) 592-5364. 🌴

## SOUTH COVE BOAT DOCK

As part of a general property renovation campaign at South Cove Resort, Grand Cayman, under the direction of dive operations supervisor Peter Hughes, a new boat docking facility has been recently completed. The ironshore beach was excavated and a new concrete slipway with beach hut and lounge area has been constructed. The new dock significantly assists access to the dive boats and provides an easy beach entry to Waldo's Reef. 🌴

## OCEAN DIVERS LINE

Ocean Divers, Inc. has installed a toll free WATS line. The numbers are: (800) 451-1113 continental U.S. (except Florida) and (305) 451-1113, Florida only. 🌴

## FOSTER'S PACKAGE

Don Foster's Dive Grand Cayman Ltd. and Hospitality World have joined forces to provide a dive package. For a seven night stay, the price includes unlimited diving, all the comforts of your own condominium, daily maid service, gratuities and taxes.

Hospitality World offers four resorts to choose from; Silver Sands, Villas of the Galleon, Sundowner and White Sands. All resorts are on Seven Mile Beach and have full kitchen facilities. Choose one, two or three bedroom apartments.

Don Foster will provide the diving. Pickups are from the beach where access is available from his fleet of flattop boats. 🌴



## FLAMINGO BEACH SNACK BAR

The Flamingo Beach Hotel on the island of Bonaire, Netherlands Antilles, recently opened a juice and ice cream bar, open daily from 10:00 am to 5:00 pm. Depending on the season, guests can enjoy freshly squeezed orange, grapefruit, pineapple, lemon, lime, guava, papaya,



carrot and various melon juices. Ice cream flavors include vanilla, chocolate, banana and rum raisin. Mouthwatering concoctions called "batidas" are created in a blender using chopped fresh fruit, ice cream, honey and crushed ice. For the less adventuresome, sodas and beer may also be purchased at the bar, in the Flamingo Nest, an open-air patio built over a coral reef. >#>

## LA MER/CLARK TO SEA OF CORTEZ

Dr. Eugenie Clark will introduce the members of a La Mer dive tour in the Sea of Cortez to the wonders of the survival and behavioral patterns of manta rays. This summer Dr. Clark will continue to probe the mantas' willingness to let humans ride on them. In addition, Dr. Clark hopes to be able to look closer into the phenomenon of the thousands of congregating hammerhead sharks in this area.

Fourteen participants will join Dr. Clark aboard the 80 foot *Don Jose* July 29-August 10. The vessel is fully equipped for diving with two compressors, aluminum air tanks, diving platform and dinghies. >#>

## IMPOSSIBLE DREAM IMPROVEMENTS

SeaVentures International Inc. has added a 200 gallon per day freshwater maker to the *Impossible Dream*. This, with the 1000 gallon water capacity of the *Dream* will extend the range of the boat. A new back deck shower has been added along with a new galley ventilation system and a head with total access by wheelchairs to the main lounge and the outer main deck. The seagoing salad bar is also in service for 1984. Camera buffs have 48 cubic feet of new storage facilities for their gear to go along with a new and even more comfortable main lounge.

The *Impossible Dream* just passed her seventh straight Coast Guard SOLAS (Safety Of Life At Sea) inspection. >#>

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# Anatomy Of A Success Story

In 1983 the Holiday Inn Grand Cayman and Bob Soto's Diving Ltd. scored an historic first in the dive industry when they introduced the guaranteed dive vacation. They didn't simply promise to refund payment for any dive that might be canceled. They didn't just make themselves responsible for finding accommodations elsewhere if rooms weren't available. Instead, they went all out and guaranteed completely free diving and accommodations for the whole stay, if even one scheduled dive did not take place or hotel accommodations could not be honored.

The offer was available from April 15 to December 15 and more than 1400 people took advantage of it. Not one asked for a refund. Even more impressive, 80 percent of participants surveyed said they would buy the package again and virtually 100 percent said they would recommend the package to a friend! (The 20 percent difference is largely accounted for by that sizable group of divers who prefer to travel to different destinations.)

The survey came about because Holiday Inn general manager Art Seeley and Bob Soto's president and general manager Ron Kipp were assessing the package from a business angle. But as Ron says, "Even if the package is satisfying as a promotional device, even if it's financially profitable, success has to be measured in terms of customer reaction. It's the customers who invest not only their money but also their valuable vacation time."

Fortunately, the staffs of the two operations feel the same way. As Paul Robinson, vice-president in charge of sales for Holiday Inn, says, "A complaint only hurts if you don't know about it."

The following statistics, comments and, yes, a few complaints about the guaranteed dive vacation have been compiled from the responses of hundreds of divers who bought the package. These reflected the opinions of couples, families and even dive groups, but I have treated each answer as representing one person, just to simplify percentages.

Most divers were asked to complete a Guaranteed Dive Package Customer Survey, including the rating of 16 different features as outstanding, good, poor or terrible. Bob Soto's dive boats and shop staff scored an impressive 98 percent favorable response with 78 percent of these ratings in the outstanding category. Only two people surveyed had a specific negative experience which they

## Guaranteed Dive Package Scores High

BY CAROL WINKER





wrote about in lieu of a rating. One man felt that a divemaster didn't know as much about weightbelts as he did. The other said he was nervous, because it was his first time diving since certification and first time ever in the ocean. He felt the staff could have given him a little more individual attention.

The checking in process at the Holiday Inn was rated favorable by 95 percent, an admirable record for any Caribbean front desk operation.

Better than 98 percent of the participants indicated no problems with air transportation. This high success rate, in an area that plagues many Caribbean destinations, prompted the Holiday Inn and Bob Soto's to name Cayman Airways as the official carrier for their 1984 guaranteed dive vacation package.

Rooms were rated favorably by 88 percent of the respondents. The majority of negative comments concerned lack of an ocean view. When asked about this, Seeley said he was aware of some people's preferences and consideration was being given to an upgrade option for future guaranteed dive programs.

Breakfast was an important feature, as the package included a full American breakfast daily. This received favorable ratings from 81 percent. Negative comments centered mostly on food not being hot enough.

The coffee shop staff and service were rated favorable by a slim majority. Aware of the need for improvement, Holiday Inn recently introduced a cafeteria line to ensure faster, more efficient service for those divers on a tight schedule.

Another feature of the guaranteed dive vacation is free admission to the Wreck of the Ten Sails night club at the Holiday Inn. Island residents willingly pay the \$5 cover charge to get in because Barefoot Man and Band are recognized as top entertainers.

He has gained additional fame abroad as the Troubador of Scuba for delightful compositions specifically about divers. Whoever made up the survey form missed a sure opportunity to reap many more outstanding ratings in the entertainment category.

But, one must suppose that divers choose a destination and/or vacation package primarily for the diving. The morning two tank dives, the heart of the guaranteed dive vacation, ranked as outstanding with 70 percent of the divers, with the other 30 percent rating them as good—an unprecedented 100 percent favorable response.

Night dives received high ratings from 96 percent. The other 4 percent specified an instance in which they felt a particular site was congested.

The unlimited shore diving feature of the package is one which Ron Kipp is presently clarifying as a result of divers' reactions. While the good and outstanding ratings far exceeded the negative, a significant number of people did not take advantage of this feature. Kipp intends to explain in future literature that shore diving is not feasible from the Holiday Inn beach, but rather from the Bob Soto's Scuba



Cayman diving



photos/Gert Murphy

Holiday Inn pool area



Soto's drop-fronts on beach



Holiday Inn lobby



Holiday Inn grounds



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- You are both wonderful teachers. No wonder you have so many repeaters. (Marj & Ted Pullman)
- I could never have won the Sport Diver U/W photo competition without your help. I'll be back. (Stewart Bakst)
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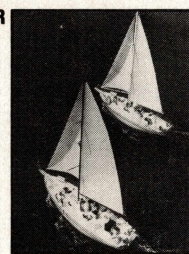
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Center two miles away. From that point, divers may pick up unlimited tanks, weightbelts, weights and backpacks. Then, they may choose to enter the water there for a dive on Soto's Reef or else take the gear to any other site on the island. The objection to this original arrangement was that some people didn't want to have to be concerned with transportation. Rental cars, taxis or buses were an additional expense they hadn't planned for. Kipp understands this and admits it was a shortcoming of the program. While some divers utilized existing Soto transport (both boat and car), Kipp believes it was not clear to the majority of divers. He has taken steps to include scheduled transportation this year.

A few negative comments that cropped up in the survey concerned the prepayment policy. On this point Kipp is adamant. "Two factors have contributed to keeping package costs down," he explains, "the accuracy of Holiday Inn's reservations system and the acceptance of bookings only with a deposit." Kipp is convinced that if airlines followed a similar policy in accepting bookings they wouldn't be going broke. People whose lifestyles do not permit them to make firm commitments a few weeks in advance may choose from other types of packages available that suit them better, he points out.

Other comments on survey forms include, "We want a greater variety of dive sites" and "We want to choose our dive sites before we go out."

Kipp agrees that dive boat captains are frequently unable to say for sure exactly where a dive will be until they get there. The major reason is that another boat may be there already. Visibility, currents and yesterday's dive are also factors. He stressed that very few dive sites are repeated during any one week. There are at least 14 sites within 15 minutes of the Holiday Inn. Many people appreciate not having to travel great distances to dive. It is for those who do wish to venture further that the unlimited shore diving feature was added.

Either consumers are getting more sophisticated or Bob Soto's and the local Department of Tourism have done a better job than they realize in promoting Cayman as the Suber Bowl of Diving. Fully 10 percent of the survey participants expressed a wish to dive the island's acclaimed North Wall. Such dives are available, depending on the weather. Kipp is willing to schedule this longer trip for an additional premium if divers desire it.

As indicated earlier, the vast majority of letters and comments about diving with Bob Soto's boats and staff are filled with

(Continued on Page 112)

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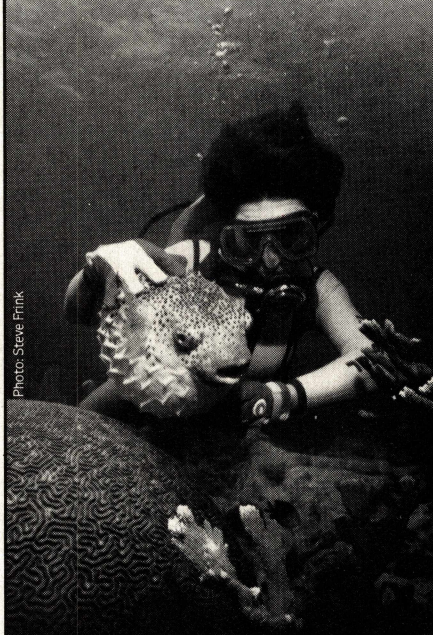


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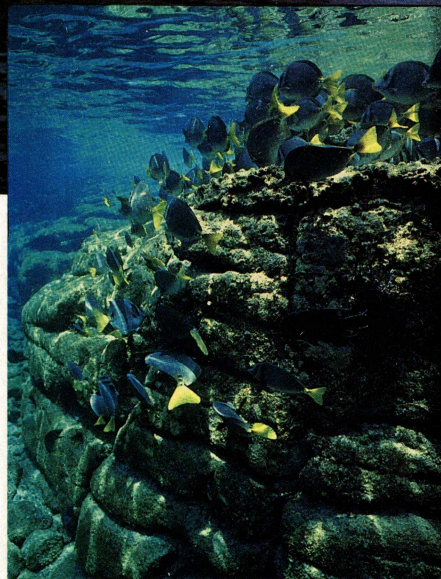


# Sea of Cortez SEAFARI



photo/David Doubilet

Each day brings a new adventure in the Sea of Cortez. Top: The *Don Jose* at anchor on San Diego reef. Skiffs are always on standby to pick up divers. Above right: Los Islotes is known for its friendly sea lions and schools of yellowtail surgeons. Above: It's not an everyday occurrence, but swimming with a whale shark is unforgettable.



The Sea of Cortez: Divers have come to expect near magic from this body of water named for a Spanish conquistador. They expect to ride manta rays, photograph schools of hammerheads and swim with at least one whale shark. But, these are not every day occurrences. What do you do in between such encounters? Well, you enjoy diving in an area rich with smaller marine life—an area where morays free swim; sea lions are friendly; gorgeous seafans abound; fish are colorful and abundant; and macro creatures are a photographer's delight. When you do encounter the spectacular mantas, hammerheads and whale sharks, these are like the whipped cream

## A La Mer Spectacular Marine Encounter

TEXT AND PHOTOGRAPHY  
BY BONNIE J. CARDONE



on an already rich dessert.

I traveled the Sea of Cortez for the third time aboard the *Don Jose* with Amos Nachoum's La Mer Diving Seafari. Dr. Eugenie Clark, professor of zoology at the University of Maryland, was our leader. A petite, lively lady whose eyes always seem to be smiling, she's a well-known shark researcher.

The La Mer trip lasted 12 days, I left the group reluctantly after seven. We made 19 dives in that time, including one night dive. Space limitations preclude a description of each dive, but I'd like to mention six of my favorites.

**Isla Los Islotes:** This was our very first dive at a spot I had been to at least three times before. The big attraction of this little island is the sea lions. One large bull specializes in zooming at divers, veering off at the last possible moment. You always know where he is because he barks constantly. King angelfish are prevalent as are yellowtail surgeons and myriads of smaller fish. On their way back to the boat, two divers watched a manta swim by and one captured the occasion on film.

**Isla San Ildefonso:** This site was new to me. It absolutely sparkles with fish life. I saw my first golden grouper here, a shy beauty that played hide and seek with me. Jewel morays and green morays are abundant. In sandy areas at about 50 feet the burrows of bluespotted jawfish, conspicuously ringed by stones, are common. This little fish is shy and will withdraw into its hole as you get near. If you wait a short distance away it will eventually go about its normal housekeeping chores. This consists of bringing up mouthfuls of sand and dashing outside the burrow to spit them out. In this area a small school of graybar grunts swam slowly up and down for a photo session. Dozens of barberfish, king angelfish and Cortez rainbow wrasse dashed up and down an underwater cliff. The diving here averages 40-50 feet but you can go much deeper.

**San Diego Reef:** I had explored the caverns here twice before and looked forward to diving them again. You can always see the openings from the inside. In the caves and outside on the overhangs there are orange *Tubastrea* corals; sea fans in golds, reds and white are everywhere. The fish are also everywhere. At one point a blue eye suddenly appeared at the edge of my mask. It belonged to a reef cornetfish that swam four feet away, then hung in midwater so I could photograph it. This area also has good shelling for those who prefer to take non-living specimens. I found two newly cleaned *Cypraea isabellamexicana* and a slightly flawed *Casamaria vibexmexicana*, both uncommon shells. You can go as deep as 50 feet at San Diego but you'll usually be in 30 to 40 feet of water. On our two dives the visibility was outstanding and

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## SEAFARI TO CORTEZ

there was quite a current running. The *Don Jose* has two skiffs ready and willing at all times to pick up divers who get carted away by the currents: The philosophy here is don't fight it, holler for help.

El Bajo: This is the most famous dive spot in all the Sea of Cortez. Stan Waterman and Marlin Perkins have dived with mantas for TV cameras here. Jack McKenney filmed *The Rays of El Bajo* on this three pinnacled seamount. Howard Hall and Marty Snyderman free dived to take spectacular photographs of schooling hammerheads. The shallowest pinnacle is in 60 feet of water and the area drops off to well over 100 feet. El Bajo is usually crystal clear and I have seen a hammerhead on every dive here. You have to know where to look for them—up or down: If the shark is on your level it will be hard to see because of its coloration. The hammerhead schools are found several hundred yards away from the pinnacles. Amos found them by accident when he dropped a mask off a skiff, then went down to retrieve it. The seamount crackles with life. Huge snappers hang in midwater; a grouper and a turtle are seen regularly. One rocky grotto is a green moray condo—there are eels everywhere you look. Fish in all colors, shapes and sizes abound.

Isla Las Animas: I think of this spot as a lovely underwater garden. The seafans are the ocean's equivalent of earth's beautiful flowers and the fish, in rainbow colors, flit about like butterflies. Here and there are patches of *Tubastrea* corals. Sharks have been sighted here because the water drops off deep. You can pick a diving level anywhere from 30 to 50 feet or deeper. When we dropped off the skiff a school of jacks swam in tandem: A black fish above a silver fish.

The wreck of the *Salvatierra*: Surrounded by sand in 60 feet of water, this sunken ferry boat is home to all sorts of marine life. On some days it is almost obscured by schools of graybar grunts. A larger grouper lives in the wreck. Purported to be about 400 pounds in weight, it has been seen by many divers over the course of four years. Visibility is usually limited—about 30 to 40 feet. This, combined with the decaying wreckage, gives the site an eerie feeling.

I have found night diving in the Sea of Cortez particularly rewarding. The boats anchor in sandy, shallow, protected bays. Our night dive was made at Bahia Agua Verde. Here I found augers, tent olives and other olive shells to photograph. Bullseye puffers rest in the sand with only their eyes and the tops of their heads protruding. Porcupine fish are easy to catch and photograph. Rays lie in large depressions in the sand and you are likely to see

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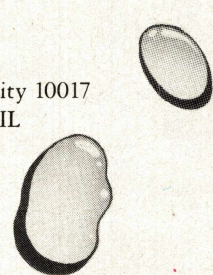
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## SEAFARI TO CORTEZ

lobsters, sea cucumbers which resemble intestines and moray eels free swimming in rocky areas.

The *Don Jose* is a comfortable 80 foot craft that carries no more than 16 divers. The accommodations are bunkroom style. Between each two rooms (four to a room) is a bathroom with toilet, shower and sink. Gear is stored in benches on the stern, second level. You dress on this level, then walk down the steps to the main deck where you don your tank. Then, it's just a few steps more to the dive platform. Most diving is done right off the boat but skiffs are used on the occasions when the boat must anchor some distance from the dive site.

Camera gear is assembled and disassembled in the large dining room which also serves as the area for slide presentations, lectures and just plain socializing. La Mer offers limited E-6 slide processing (two rolls apiece for our group, mainly to check equipment and exposures) as well as Polaroid slide processing. Amos' largest audience gathered when he developed and mounted a roll of Polaroid color slides almost instantly.

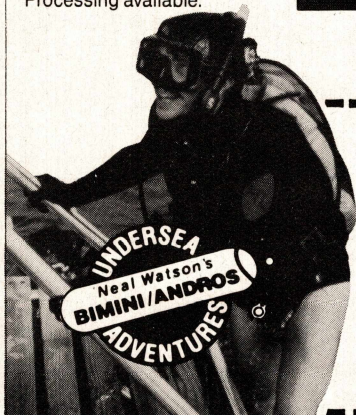
The weather in this area is hot and usually dry. Most everyone drags a pad and sheet out on either the second or third deck and sleeps out under the stars. Daytime dress consists of bathing suits or shorts and a T-shirt. Bring your own gear with the exception of weights, weightbelts and tanks, which are furnished. Below decks there is an area set up for charging strobes and lights.

Plan to wear protective coverings whenever you are in the water. Although it is warm (in the low 80s) there are stinging creatures floating about. Some of these can be seen, others cannot, and their whereabouts are unpredictable. Although the Sea of Cortez does not have fire coral it does have stinging hydroids. These white feathery creatures are to be avoided as the results of encounters with them can be painful for days.

The food aboard the *Don Jose* was uniformly excellent. Our young Mexican chef had a knack for adding unusual ingredients to standard fare for a deliciously different taste.

It was most interesting traveling with noted shark expert Dr. Clark. One evening she presented a slide show on the garden eels of Eilat and we had several extemporaneous lectures on fish behavior. At El Bajo, the *Don Jose's* captain took a skiff several hundred yards away from the boat to fish for silky sharks. When he returned with three (to be sold in La Paz) Genie dissected one, watched by 14 fascinated divers.

Both Eugenie Clark and Howard Hall will be leading La Mer trips to the Sea of

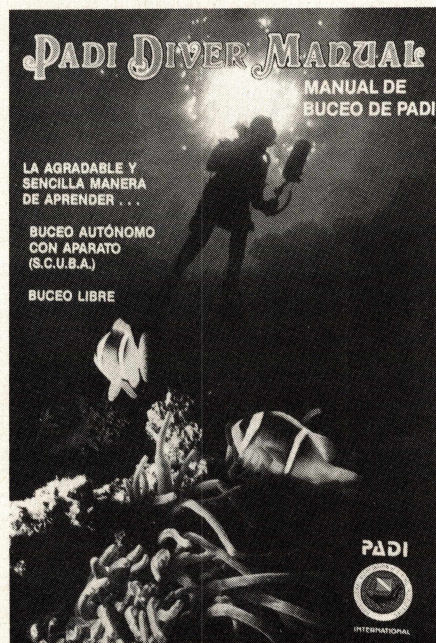




Cortez this summer to study mantas and hammerheads. For information contact Amos Nachoum at La Mer Diving Seafari, 823 U.N. Plaza, Suite 810, New York, NY 10017. >#16

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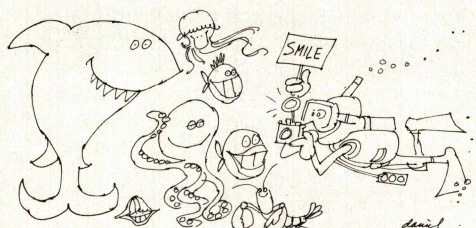


This new educational package corresponds page for page, feature for feature with the English and Japanese versions. All are available at PADI dive stores. >#16

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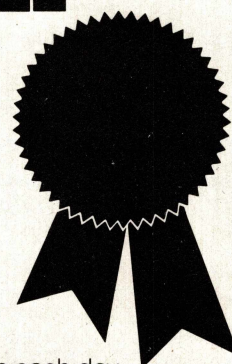
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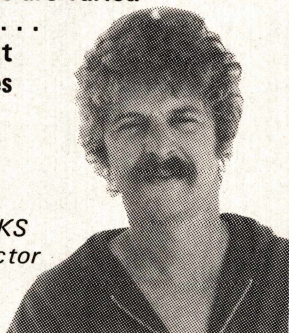
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## GUARANTEED VACATION

(Continued from Page 105)

positive, even superlative, accolades. The Gulf Coast Divers Society of Mobile, Alabama wrote: "It was unanimously decided by all of us that you have succeeded in operating the finest dive operation in the Caribbean. We thoroughly enjoyed the courtesy and respect received from your staff."

From Woodstock, Georgia, Helen Craig wrote: "I don't think I could ever have made that first dive had it not been for the skill and encouragement of (dive-master) Steve Creamer. He was extremely patient with me and gave me the confidence to make my first dive (making) my second dive easy and carefree."

In praising Bob Soto's "prize winning team of divemasters," U.S. Air Force Lieutenant James Savies said, "Their professional but friendly nature will become the standard which all others will be judged against."

Kipp's favorite comment, however, must be the one from Ken Jones of Louisville, Kentucky: "We'll be back, Ron, I guarantee it."

To paraphrase an old saying, "You can please some of the people all of the time and all of the people some of the time, but you can't please all of the people all of the time." But, I'm not about to tell that to Art Seeley and his staff or Ron Kipp and his crew—because they're not about to stop trying.

## LA MER/CLARK TO RED SEA

La Mer Diving Seafari, Inc. of New York City is offering an expedition to the Red Sea with Dr. Eugenie Clark, May 30-June 17. Dr. Clark will lead the expedition on board the private 75 foot yacht, the *Lady Jenny III*. This vessel is specially equipped for diving with two compressors, 20 aluminum 80 tanks, two support dinghies, five air-conditioned double cabins and color processing facilities.

The purpose of the expedition is to study, first-hand, the reef condition following ecologists' latest achievement—the Egyptian government's designation of Ras Muhammed as a national park. The declaration has halted all fishing and marine life collecting at this site.

An intimate group of nine divers will join Dr. Clark for 14 days of unlimited diving. They will explore, in addition to Ras Muhammed and the Tiran Straits, new and remote dive sites in the Red Sea.

In addition to the diving, the trip's itinerary includes two days in Israel including touring of Tel Aviv and a visit to Eilat's Underwater Observatory and its open tide pools. The expedition concludes in Cairo, Egypt with a visit to the pyramids.



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3 Br. O/F	— — —	— — —	309 509 719
2 Br. P/V	— — —	329 539 749	529 829 1039
2 Br. G/V	— — —	279 459 649	229 369 519
1 Br. P/V	449 739 1039	279 459 649	— — —
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\*\* O/F - Ocean View - P/V Pool View - G/V Garden View \*\*

### EXTRA NIGHT

1 PERSON	2 PERSON	3 PERSON	4 PERSON
3N 5N 7N	3N 5N 7N	3N 5N 7N	3N 5N 7N
3 Br. O/F	— — —	111 — —	95 — —
2 Br. P/V	— — —	115 — —	92 — —
2 Br. G/V	— — —	101 — —	83 — —
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DLX 299 479 719	209 319 509	189 289 469	179 279 439

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### EXTRA NIGHT

1 PER.	2 PER.	3 PER.	4 PER.
3N 5N 7N	3N 5N 7N	3N 5N 7N	3N 5N 7N
DLX 116 116 116	86 86 86	79 79 79	76 76 76

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\* Rates Effective \*

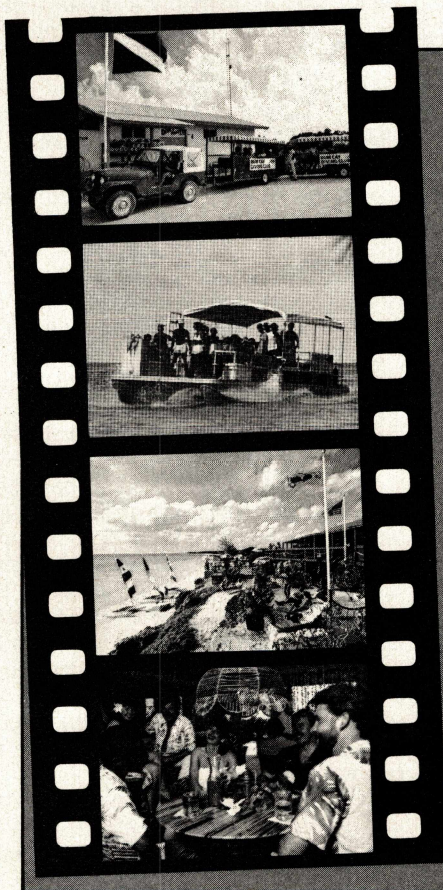
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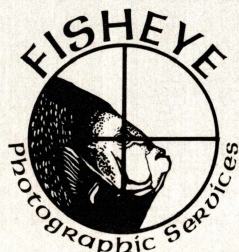
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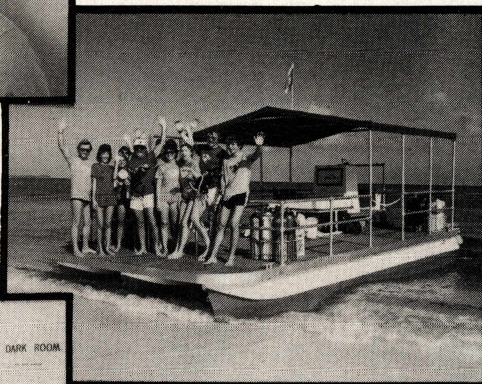
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## JADO OFFICERS

JADO, the Jamaica Association of Dive Operators, has new officers for 1984. Elected to official posts were Craig Larson of SunDivers Jamaica, president; Steve McClure of Tojo Watersports, vice-president; Theo Smit of Poseidon Nemrod Club, secretary/treasurer.

JADO promotes safe scuba diving in Jamaica. For more information contact Shawn McDermott, JADO Information Officer, P.O. Box 212, Runaway Bay, Jamaica; (809) 973-2346.

## CAYMAN BONUS PROGRAM

The Bonus Dive Program at the Cayman Islander Hotel was rated as a great success by divers who visited Grand Cayman during the summer of 1983. To complement the extension of the program through December 15, 1984 the Cayman Islander recently expanded to 70 rooms and added television to 24. Its four channel satellite hook-up makes the Cayman Islander Hotel unique in accommodations in the Cayman Islands.

The Bonus Dive Program offers eight day, six day and four day diving packages with morning two tank dives, a night dive, a Bob Soto's T-shirt and unlimited shore diving. A full breakfast each morning as well as manager's cocktail party and welcome rum punch are part of the hotel/dive package. Bob Soto's has a fully equipped dive shop at the hotel.

## MARRIOTT HELPS NENE

The nene, Hawaii's state bird, found on the slopes of Haleakala, received a special gift last Christmas, courtesy of the Maui Marriott Resort at Kaanapali Beach. For each Christmas card sent by the Maui Marriott to its many friends, the hotel donated 25¢, on behalf of the recipient of the card, to the National Park Service, which is making great efforts to protect these rare birds from extinction.

The Maui Marriott has a special affinity for the nene bird which is integrated with the lokelani blossom to form the hotel's logo. Money raised will go toward funding the construction of a new breeding pen which will be adjacent to the Headquarters Visitor Center at Haleakala National Park. The new facility will feature a large natural scene and watering pond separated from the visitor enclosure by a native rock wall, simulating the bird's natural habitat and providing the best possible conditions for the breeding of the endangered nene.

Further information on the nene, Haleakala National Park and the National Park Service can be obtained from Hugo Huntzinger, Superintendent, Haleakala National Park, at (808) 572-9177.



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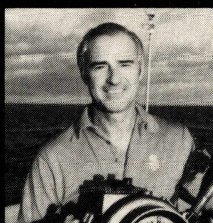
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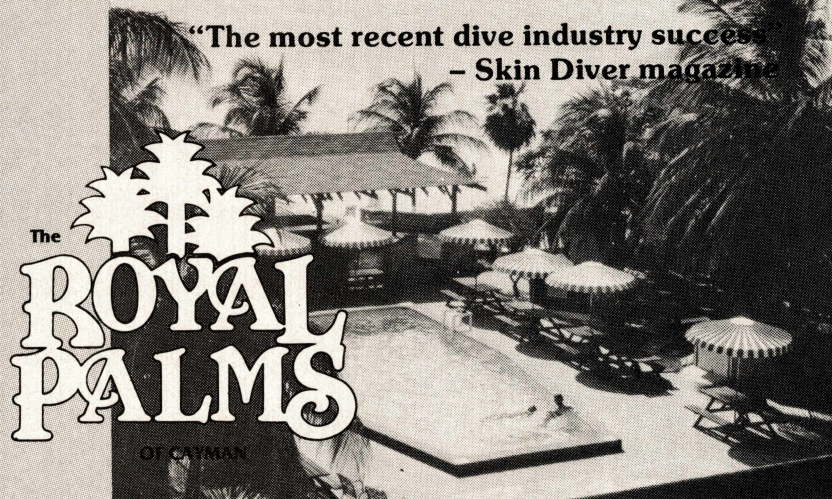
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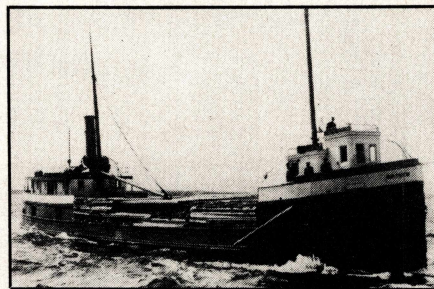
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## WRECK OF THE THEW

BY STAN STOCK

The *William Peter Thew* was a small Great Lakes steamer built in 1884. As were many of the early steamers that plied the lakes during the latter part of the century, she was constructed of wood. The *W.P. Thew* measured 132 feet in length, with a width of 24 feet and an 8 foot draft. Rated at 206 gross tons, the *Thew* carried many cargoes during her



lifetime on the lakes. Many sailors around the lakes knew the *W.P. Thew* as the Little Peeper because of the tiny windows in the pilot house.

On June 21, 1909 the *Thew* left port and proceeded up Lake Huron. She carried captain William Duncan and a crew of 10. She was upbound light, which meant there was no cargo on board. She had only one broken anchor and the plan was to replace it with two specially made anchors at the first regular stop on Lake Huron. On each new anchor was to be a brass plate with the names of all the crew members. An anniversary party was also planned as the Little Peeper was 25 years old that year.

The fog was very thick as the *Thew* proceeded cautiously up the lake. At about 6:30 am, when she was opposite Thunder Bay Island, another steamer loomed out of the fog and struck the *Thew* amidships, then disappeared into the fog again. That ship was the *Livingston Bell*, a steel steamer captained by D.P. Craine. The crew of the *Thew* saw nothing of the *Livingston* after the collision and it was asserted that she continued on her way down the lake. The Little Peeper had been struck on the starboard side just forward of the boiler house and began to settle in the water.

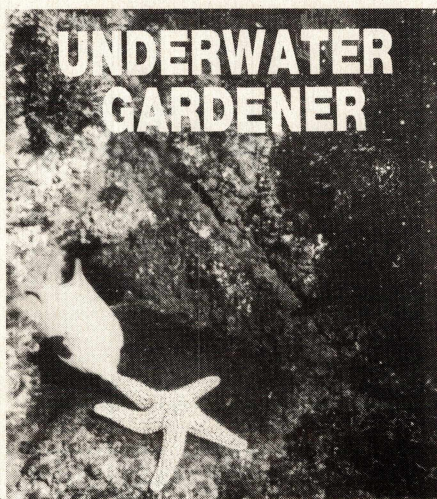
As the fog lifted that morning the lighthouse crew on Thunder Bay Island discovered the sinking vessel and summoned the lifesaving crew. The steamer *Mary C. Elphicke* also spotted the sinking vessel and went to her assistance. The

(Continued on Page 121)



## UNDERWATER GARDENER

photo/Bob Dawson



BY GARY L. WILSON

Many Southern California divers are familiar with the bright orange garibaldi, *Hypsypops rubicundus*. Found in most rocky reef areas south of Pt. Conception, this little fish is especially known for its pugnaciousness.

Some garibaldis readily threaten divers with such fearlessness that one gets the impression that this damselfish thinks he's a giant sea bass. This behavior is more evident at certain times of the year and only in certain individuals. The explanation for this behavior lies in the garibaldi's unique lifestyle.

Male garibaldis actually practice gardening. Not as a hobby, of course, but in order to reproduce. Males stake out a territory which includes a shelter hole, a feeding area, and a nest site. The nest site is a one foot diameter spot on a rock which the fish diligently cleans of sand and seaweed except for three species of red algae. The garibaldi prunes these plants to a height of one-half inch and protects them from marine grazers so that a dense mat is formed.

After two years of steadfast care, the garibaldi is ready for females to lay their eggs among the algae. After a brief courtship, the female deposits her eggs in the algae mat where the male fertilizes them. This procedure is repeated with several females until the nest is full and contains about 130,000 eggs.

Now the nest owner becomes especially belligerent. He must guard the eggs from possible predators. Most important of these are other fish but crabs and starfish are also a threat. Intruding fish are chased away while crawling predators are picked up and carried away from the nest. The garibaldi also picks off any debris settling on the nest as well as any diseased eggs.

Spawning takes place from April through July and the last young leave the nest in late August. The next time you find a garibaldi during this part of the year, check to see if it is a male guarding a nest. It is best to observe from a distance.

(Continued on Page 121)



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# BIRTH OF THE BENDS

**A Century Ago  
Below Brooklyn Bridge**

**BY PAM GOLDEN**

If a fellow diver asked you what divers and the Brooklyn Bridge share in common, you might simply shake your head. Yet 1983 was the anniversary of a monumental moment in history for both the diving industry and The Great Bridge that links Brooklyn to New York City.

The 100th birthday of the Brooklyn Bridge also marked the anniversary of the discovery of one of the most fearsome of diving maladies; decompression sickness, otherwise known as the bends, chokes, staggers or caisson disease.

John Augustus Roebling—architect, scholar, philosopher and “burning liberal idealist”—planned the construction of this colossal suspension bridge that arches across the East River. Little did he suspect that its actual construction would cause a great deal of pain and personal sacrifice; that his workmen would be plagued with a mysterious malady nicknamed caisson disease.

The great bridge lies suspended between two huge, conspicuous stone towers, slung with massive wire cables. These towers are close to 300 feet high and go deep beneath the riverbed. They require tremendous wooden foundations or caissons for support. In order to submerge these caissons (a French word which literally means “big box”) workers had to first dredge the riverbed, then dig through gravel and sand and occasional layers of quicksand as deep as 75 feet below sea level. They were thus subjected to abnormal atmospheric pressures and adverse working conditions.

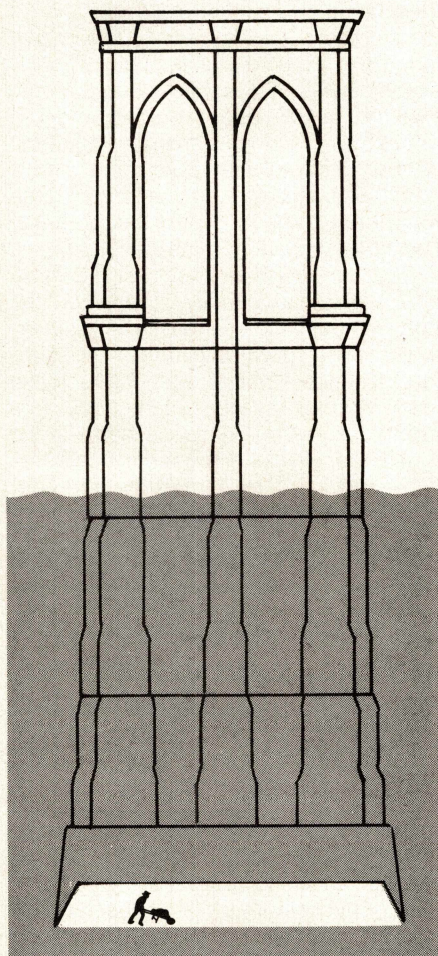
According to Roebling's plan, the huge hollow timber boxes were floated to the site and submerged. When the dredging was complete the men filled the caissons with concrete, making them nearly invincible. In fact, Roebling estimated that each tower weighed a total of 67,850 tons and that each caisson carried a total weight of 23 tons per square foot, a staggering sum providing four times the necessary support.

Working inside the caisson compared to a night in living hell. Like a gigantic water glass turned upside down in a tub of water, it trapped compressed air and workers inside, offering little or no means of communication to the surface. Actually, the only line of communication was a mechanical signaling system; an inch tube that passed through a capped sand-



pipe with index pointers that printed the messages "stop," "start," and "bucket is caught."

To enter the caisson the men were locked inside a little iron room, then the hatch was secured and a brass valve opened followed by a deafening screech as compressed air rushed into the lock. Most men instinctively cupped their ears or plugged them shut with their fingers to deaden the horrible sound. Once the sound ceased, the hatch was opened and the workers descended an iron ladder leading into the caisson.



In *The Great Bridge*, an epic tale depicting the trials and tribulations involved in building the Brooklyn Bridge, from Roebling's first draft to the ceremonial march upon its completion on May 24, 1883, author David McCullough recounts one worker's perception of life down below in those early stages of construction: "Inside the caisson everything wore an unreal, weird appearance. There was a confused sensation in the head, like the rush of many waters. The pulse was at first accelerated, then sometimes fell below the normal rate. The voice sounded faint, unnatural, and it became a great effort to speak. What with the flaming lights, the deep shadows, the confusing noise of hammers, drills, and chains, the half-naked forms flitting about, with here and there a Sisyphus rolling his stone, one might, if of a poetic temperament, get a





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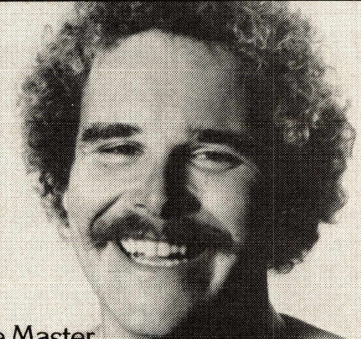
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Steve Creamer, Dive Master

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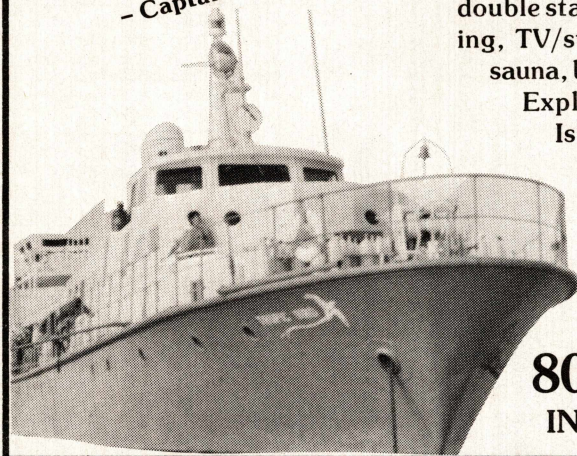


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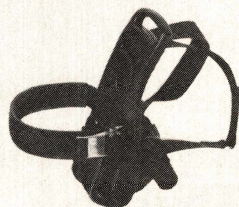
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## THE BENDS

realizing sense of Dante's inferno. One thing to me was noticeable—time passed quickly in the caisson."

At first Roebling and his men encountered only minor discomfort, such as extreme fatigue, as they adjusted to shifts in atmospheric pressure. But once they reached 51 feet below sea level, worked continuous hours, then rose abruptly to the surface at the day's end, they began to feel the adverse affects of decompression sickness. They suffered leg cramps, swollen joints—especially around the knees, wrists and elbows—dizziness, double vision, repeated vomiting, and a horrible staggering pain that forced some to double over in contorted posture: Hence the nickname "the bends."

Decompression sickness, as it is more clearly understood today, results from the body's reaction to changes in atmospheric pressure. Breathing under pressure forces quantities of nitrogen into solution in the blood and tissues of the body. This rapidly returns to a gaseous state—in the form of dangerous nitrogenous bubbles—if the pressure is suddenly relieved. These bubbles can block the bloodstream, cutting off the oxygen supply to vital centers. If released in the spinal cord, they can cause total paralysis.

If the pressure is relieved gradually, the gas comes out of solution slowly and leaves the body naturally via the lungs.

As cases of the bends repeatedly plagued the workers, Roebling decided there ought to be a doctor on hand and hired Dr. Andrew H. Smith—a former Army doctor, surgeon and throat specialist at the Manhattan Eye and Ear Hospital.

McCullough tells us how Dr. Smith watched the men around the clock and made countless notes and observations of their physical condition. He noticed that as men emerged from the caisson they all looked pale and showed slightly shrunken hands and shriveled fingertips as if waterlogged. They also ran fevers, often wrung wet with perspiration and exhibited insatiable appetites.

In an effort to alleviate the pain and swelling, Smith applied hot poultices for swollen joints, recommended hot soapy baths for paralyzed joints and packed ice for arms, and often doused spines with ice water. He also frequently administered ergot, doled out whiskey and ginger, or gave injections of atropine, a poisonous alkaloid used as an antispasmodic. If worse came to worse, Smith turned to morphine and drugged his patients so heavily that they nearly fell numb.

The fastest remedy, however, according to Smith, was recompression or descending into the caisson. That idea, McCullough says, never sat well with the



men and was likened to climbing back on the horse that threw one. The men preferred instead to head for the local watering hole (pub) and drown their pain.

Dr. Smith actually came quite close to discovering the major cause of the men's discomfort, blaming it largely on the rapid shift in atmospheric pressure and noting that the symptoms always appeared *after* the pressure was removed, never while the men were still working under pressure. Smith also believed that the attacks were directly "affected by the duration of the stay in the caisson" as well as rapid decompression itself. Yet in the end, he remained convinced that some people were simply more susceptible to the mysterious malady than others. "A matter of special predisposition" he called it.

In May of 1872 Roebling finally called a halt to the digging. At a depth of 78 feet 6 inches they were on the brink of hitting bedrock. Roebling decided they had dug deep enough. Dr. Smith resigned and returned to the eye and ear hospital, though not without having significantly contributed to our understanding of the mysterious malady that still cripples divers today.

Both men helped uncover hidden facts and valuable information about decompression sickness that serve as precursors to our modern U.S. Navy Dive Tables. >

## WRECK OF THEW

(Continued from Page 116)

crew members and their personal effects were transferred to the *Elphicke* and taken to Detroit. The *Thew* remained above water for 30 minutes before taking her final plunge to the bottom of Lake Huron.

On May 9, 1982 I discovered the *W.P. Thew*. With me was my brother Jamie Stock. The wreck lies 2.2 miles off Thunder Bay Island and rests in 84 feet of water. She is badly broken up with only the boilers and engine still standing. We have dived the wreck many times after its discovery, taking pictures and doing survey work on it. The broken anchor was under the wreckage of the bow and remains there to this day. >

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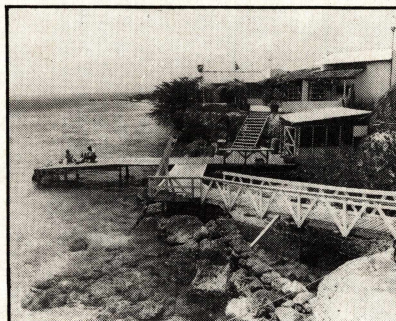
(Continued from Page 117)

otherwise you will command all of the garibaldi's attention, leaving the eggs vulnerable to attack.

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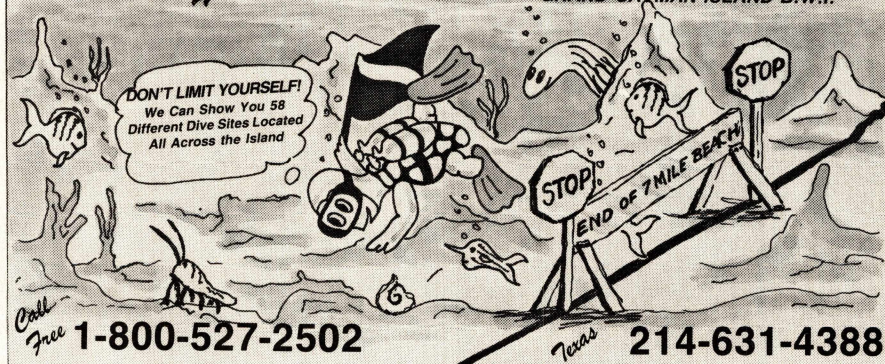
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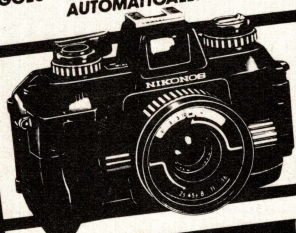
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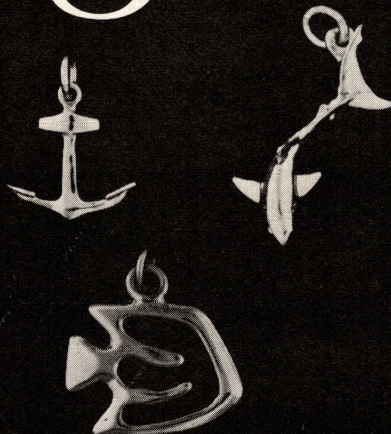
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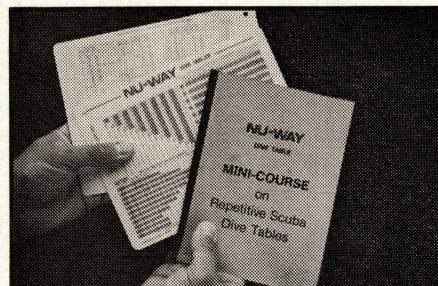
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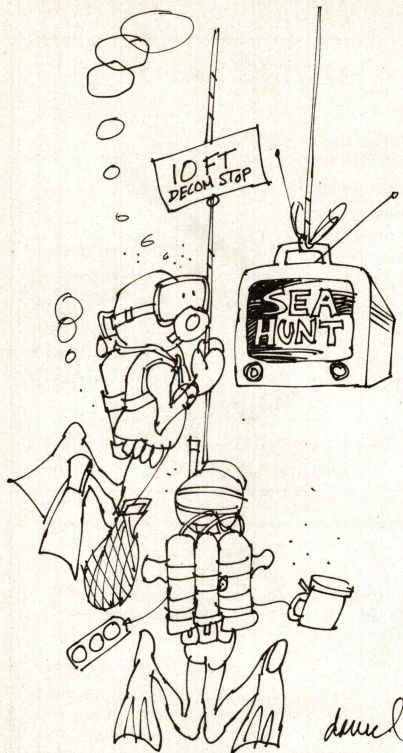
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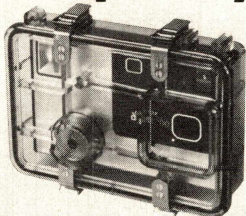
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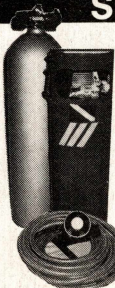
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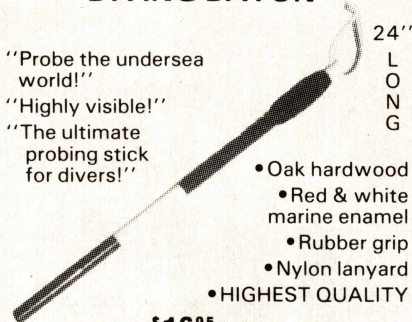
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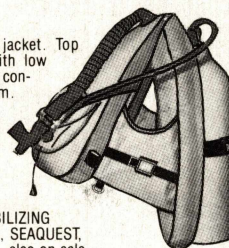
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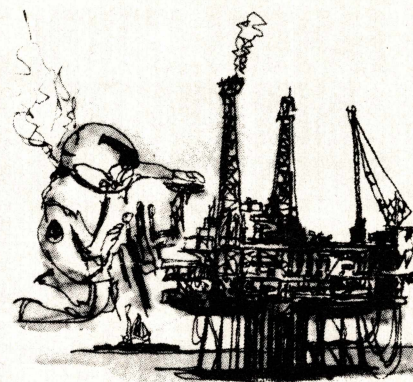
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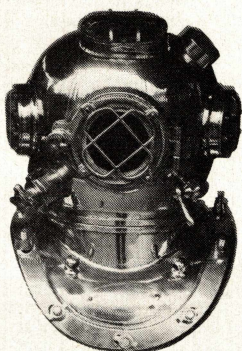
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\*Four person occupancy per two bedroom, two bath apartment.

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**\$129.95**

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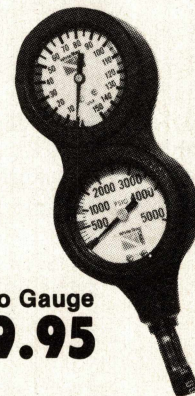


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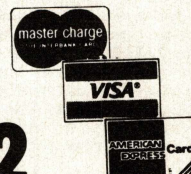
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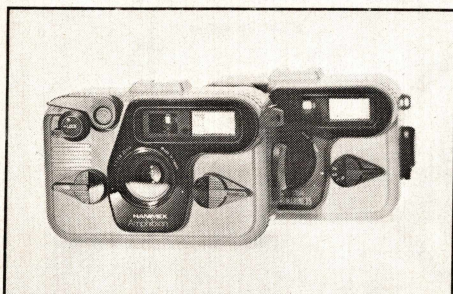
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Underwater Life Support Systems are potentially dangerous to a non-trained user. These include scuba tanks, regulators and buoyancy compensators. This does not constitute an offer to sell these items via mail order.

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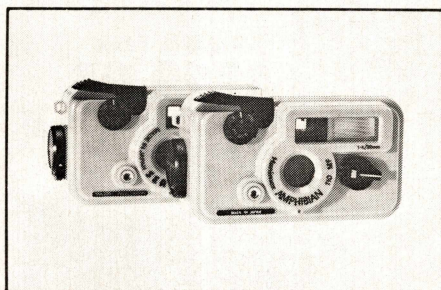
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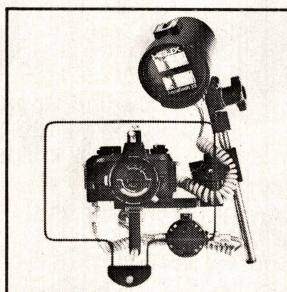
Amateur photographers can get top-quality photos with Amphibian cameras manufactured by Sea & Sea. Available in a 110 and new 35mm version, these compact cameras are waterproof to a depth of 150'. They both feature built-in electronic flash and automatic film advance. The 110 is prefocused (3' to infinity) and has 3 position exposure settings. The 35mm model offers apertures from f2.8 to f22 and variable focus.

Hanimex by Sea & Sea\*110 Amphibian. . . . . \$ 94.50  
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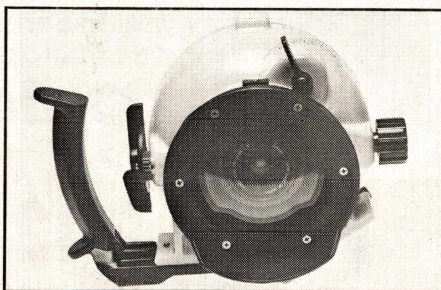
Nikonos Close-Up Outfit includes supplementary close-up lens, field frames for three lenses (28,35 and 80mm)  
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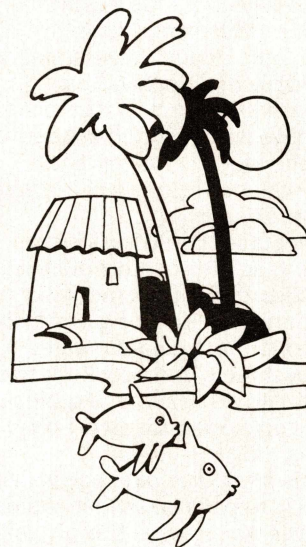
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2104 W. Oakland Park Bl., Ft. Lauderdale, FL 33311 305/735-6227

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Dive trips 6 days a week.

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Instruction, rentals, boats, canoes, pkg. deals, pvt. Manatee obser.  
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SEAPRO SCUBA CENTER OF PALM BEACH 305/844-DIVE  
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Efficiencies, hotels, homes; week or month.  
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diving and room pkg. prices. Next door at Holiday Inn, Islamorada.

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31' cstrn. boat, 6 max. Free: guided dvs., use of u/w camera.  
Drift dives avail. Recommended by Undercurrents, 3/82.

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KEY WEST PRO DIVE SHOP 305/296-3823  
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PENNEKAMP DIVING HEADQUARTERS 305/451-1151  
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AQUATICS KAUAI, LTD. 808/822-9212  
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PADI training facility, daily tours, sales, rentals.  
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KONA COAST SKIN DIVER	808/329-8802
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MAUI DIVE SHOP	808/879-3386
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OCEAN ACTIVITIES CENTER	808/879-4485
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Full service pro dive store since 1961. Write for free brochure.	
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6674 N. Northwest Hwy., Chicago, IL 60631	312/763-1626
#26A Yorktown Shopping Center, Lombard, IL 60148	312/495-2822
1717 Rand Rd., Palatine, IL 60067	312/358-3848
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Wreck diving our specialty.	

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SCUBA NORTH, INC.	616/947-2520
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Most complete pro service in eastern New Mexico.	

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Area's most comprehensive year round scuba school.	
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- JOLLY ROGER DIVE SHOP, INC.** 717/866-5535  
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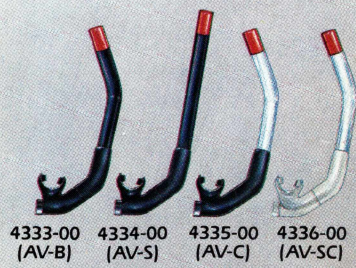
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Aqua-Lung® Pro Line Compro fins deliver maximum thrust with minimum effort. During the downstroke, when more powerful quadricep muscles are used, the blades' full surface areas are put to work to propel you forward. Compro blades are also slightly angled, so when fully flexed, they push water directly behind you — not up and down like most fins. During the upstroke, when weaker muscles are used, vents in the blades allow some water to pass through. This reduces surface area, decreases blade resistance, and results in a rest stroke for your legs.

Choose our popular Composite-Blade, our new Blue-Blade, or the new Compro-Graphite with graphite-filled blade for more power and snap. Each is human engineered for better fit, and features adjustable straps with a contoured foot pocket for total comfort. Pro Line Compro fins. More push for your kick.

See our complete 1984 line at your local authorized Aqua-Lung dealer. Or write for your free catalog: U.S. Divers, 3323 W. Warner Ave., Santa Ana, CA 92702. (714) 540-8010.



**PUSHY.**

**PUSHY.**

**PUSHY.**